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FIRST INTERIM REPORT
WILL COUNTY FOREST PRESERVE DISTRICT
DEPARTMENT OF LANDSCAPE ARCHITECTURE
UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

OCTOBER 21, 1975: REGIONAL DATA GATHERING FOR MASTER PLANNING

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HISTORY PERTAINING TO THE WILL COUNTY FOREST
PRESERVE DISTRICT

Greenfield
Owen
Borowski



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<http://www.archive.org/details/willcountyforest00univ>

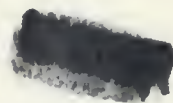
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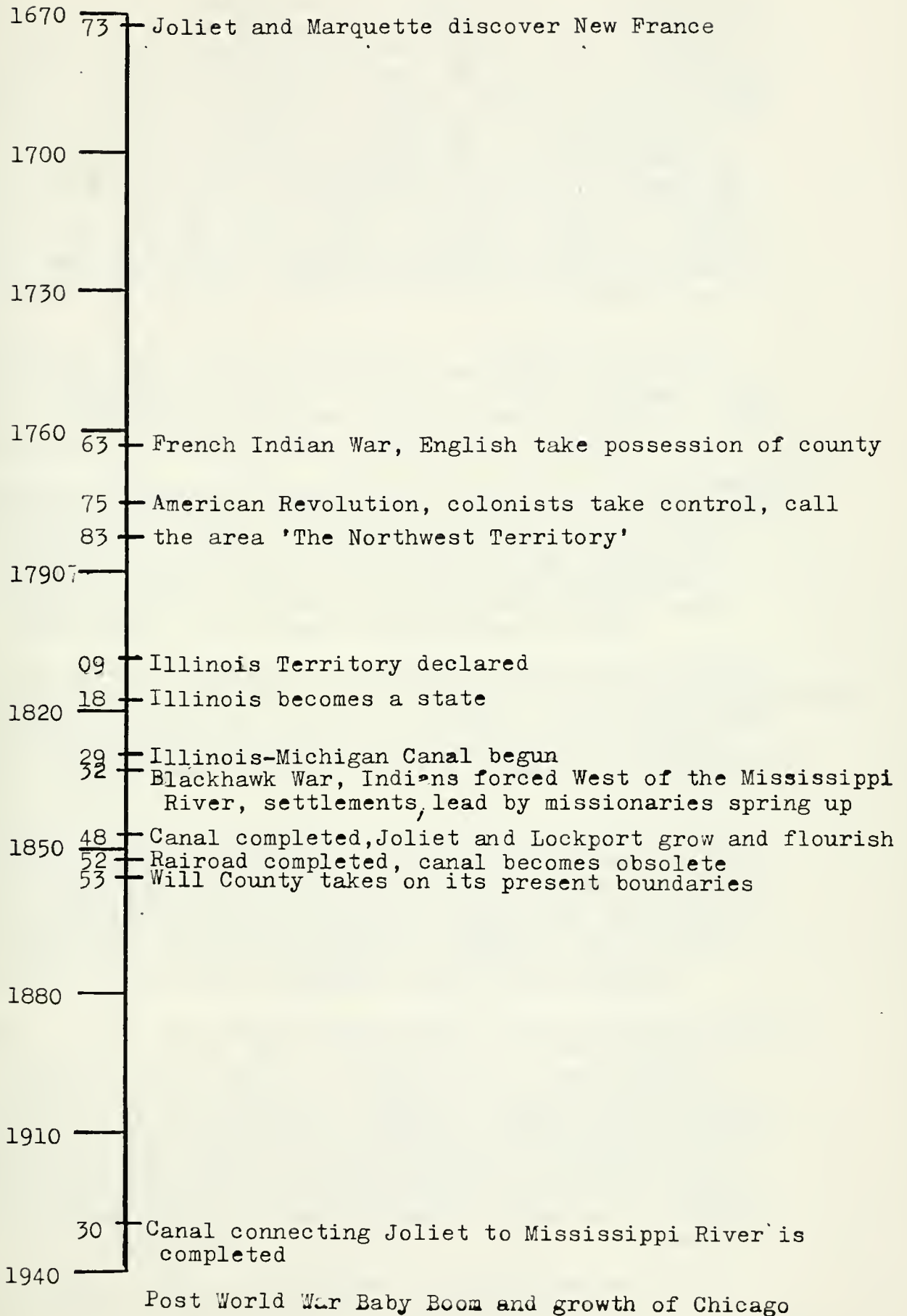
The Major Events In The History Of Will County

and

A Historical Forest Preserve Site Inventory, 1939 To 1967



WILL COUNTY TIME LINE



In order to fully appreciate this study on Will County and the Forest Preserve, it is necessary to understand the historical environment from which the area has emerged. The historical perspective lends information on why the area was settled, when the area was settled, and what factors lead to the continued growth and stabilization of the county. This information, much like an architectural drawing, explains the foundations of the county, points out those elements which have caused the county to grow, and which ultimately have made at least one aspect of the county, the Forest Preserve, important enough to merit this comprehensive study. Included below is a short concise history of Will County. It is meant only as a basic guide in explaining Will County's growth from the first white settlers to the present, and is by no means comprehensive.

The area now known as Will County was originally discovered by the French explorers Louis Joliet and Father Marquette in 1673. Travelling along the Illinois and Des Plaines rivers the two explorers claimed the area as French Territory, and subsequently the colony became known as New France.

The English inherited the area with the outcome of the French and Indian wars of 1763, but their ownership was shortlived. The American Revolution, 1775-1783, gave the territory to the colonists, who promptly mapped the area as part of the Northwest Territory. In 1809 the Illinois Territory was declared, and in 1818 Illinois became a state of the union. Will county took on its present boundaries in 1853.

Ingrained in the history of Will County are the Illinois and Des Plaines Rivers. ~~==~~ These rivers served as routes of navigation for the French explorers and many travelers there after, the rivers also provided habitats for the native Pottawattomie Indians. The Indians used the rivers for their hunting grounds and homelands.

The Indians and white settlers tolerated each other until the outbreak of the Blackhawk War of 1832. The Indians lost the war and were forced into reservations west of the Mississippi. With the territory finally free from the threat of Indians, white settlers, led by missionaries, began to migrate into Will County with many settlements springing up in the vicinity of what is now Joliet, Plainfield and later Lockport.

In 1829, a canal was begun which would connect the Mississippi River to Lake Michigan. This canal was near completion in 1848, and marked the major turning point in the growth and stabilization of Will County. Cities and industry prospered. Present day Joliet and Lockport began to take their present form as major manufacturing, industrial and shipping centers. One Hundred years later the final stages of Joliet's canal programs were completed when, in 1930, a series of locks and dams connecting Joliet to the Mississippi River were installed. Today this final stage of the canal is used most frequently.

The 1829 canal between Joliet and Lake Michigan was only successful for a short while due to the progress of the railroad. In 1852 the railroad stretched from the east to Joliet, linking Joliet to Chicago. The cheaper, faster railroad quickly made the early phase of the canal obsolete.

From the mid 1800's until the 1940's Will County remained a rural, agricultural county, with the exception of the industry of Joliet and Lockport. However growing pressure from Chicago has caused a change of character in the region. This change can best be seen in the new town development Park Forest South, or the uncontrolled sprawl of Bolingbrook. The result of this expansion has been a loss of precious agricultural soil, the destruction of woodlands, decrease of good water, and a loss of open space. It is essential for a study to be carried out by the forest preserve in order to preserve these essential resources.

HISTORICAL SITE INVENTORY: 1939-1967

In addition to compiling a broad history of the county, it is also important to document the history of each particular forest preserve site. This however is easier said than done. The history of the particular sites is buried deep within the county minutes, historical biographies, and local cemeteries. However, since the county has only begun to change in character within the the last 30 to 40 years, it was felt that a study of how these sites have changed within the last 30 years would be a valuable resource. Fortunately, with the aid of aerial photography, such an inventory was successfully completed.

1939 aerial photographs for each forest preserve site, were compared with 1967 photographs. Changes in the general area around the periphery of each site was noted, along with any changes that have occurred on site.

VETERANS MEMORIAL WOODS: The northern most triangle of the site was in agriculture in 1939, but has since been allowed to grow out, and as of 1967 was in the scrub stages of succession. A service road along Joliet road, at a point perpendicular to the farmstead just opposite the site has been added. The vegetation masses and open spaces have generally maintained their densities and configurations. A quarry has developed along the eastern portion of the site, and some impact from this development will probably be felt in the future.

VAN HORNE WOODS:

General Area: The immediate area along the site has been greatly altered by the addition of new housing developments. These developments have torn into the previously undisturbed timber and forest. Most of this development is occurring along the western border of the site.

The Site: The vegetation within the site has either matured or maintained itself. Some of the 1939 open spaces have since been filled in. The old Valley Young Adults club, occurring on

the western rectangle, has had a significant increase in vegetation. A dirt track, present in 1939, seems to have been maintained.

Two main entrances, one on U.S. 30, and one on Cleveland Road have been added.

HUNTERS WOODS:

General Area: The general area has remained primarily agricultural as it was in 1939. Still new housing developments can be seen along the western boundaries of the site. A major housing development has occurred along St. Francis Road, north of the site.

The Site: The character of the site has remained heavily vegetated much as it was in 1939. A bog area, which in 1939 still showed a significant amount of surface area has since proceeded in bog succession and has filled in with vegetation at the expense of the surface water.

Access to the site has been acquired along a long easement beginning on U. S. 30 and the Western portion of the site.

RACCOON GROVE:

General Area: The areas to the east and northeast of the site, previously wooded in 1939, have been heavily cleared in order to support new housing development. Although still primarily agricultural, there are a number of new roads supporting new developments.

The Site: The site, a large wooded area with few open spaces, has remained very constant with no major changes.

RUNYON WOODS:

General Area: Located outside the Lockport Region, the area along the site was substantially built up in 1939. Since that time the area has experienced moderate development, primarily to the north.

The Site: A 1939 farmstead, along the western rectangle of the site has been removed, and that portion of the site, as of 1967 was in early stages of revegetation. A road network weaving through the site in 1939 has been eliminated.

SPRING CREEK:

General Area: Located northwest of Joliet, Spring Creek has experienced tremendous growth along the boundary bordering Joliet. What was farmland in 1939 has now been converted to industrial and residential development. This impact comes right up to the periphery of the site.

Much of the farmland to the east and northeast, has remained in agriculture, but the land holdings are smaller and more land is in woodland than in 1939. This is in contrast to the general trend which is large farms farming every inch of land capable of producing.

The Site: In 1939 the site was primarily agricultural except for a treeline bordering Spring Creek. The eastcentral portion of the site was partially wooded, It might have been used for grazing as indicated by an irregular canopy, and a lack of understory.

The 1967 site is very similiar, with many areas being in active agriculture. The treeline along the creek has expanded into the area that was farmed previously, and in general the vegetation along the stream is much fuller. The wooded east-central portion of the site has filled in , both in canopy and understory.

JOSEPH ZALAR W ODS:

General Area: The general area has remained very much the same as in 1939, that being agricultural. Some small developments, commercial and residential, have occurred to the north of the site. Most major developments in the area are occurring to the west of U.S. 52 in the direction of Joliet.

The Site: The site still remains primarily in active agriculture. The northern portion has terminated agriculture and is beginning to achieve scrub stages of regeneration. Sometime between 1939 and 1967 a road was cut into the site, but it appears to be unmaintained.

Wayne Lehnert:

General Area: The general area remains virtually unchanged. All area were and still are in active agriculture.

The Site: The site has also remained unchanged, and of 1967 the site was in active agriculture.

GERDES WOODS:

General Area: The northern portion of the area remains in agriculture much as in 1939. The portions of land immediately bordering the site have been subdivided and will probably be built upon in the next few years. These same areas previously in agriculture have been allowed to grow into scrub.

The site: The site has remained undisturbed.

MCKINELY WOODS:

General Area: The general area along all portions of the site has remained in agriculture. Most farms in the area have maintained their sizes and no significant developments have occurred.

The one exception to this is south of the Des Plaines River near the central peninsula portion of the site. Some homes have been developed in this area, but most development is of a nature that requires large landholdings, perhaps commercial or industrial. Some quarrying is occurring along with a number of undeterminable uses.

The Site: Moose Island appears not to have undergone any major changes. The vegetation has matured and invaded some of the openlands.

The other island was under some program of maintenance in 1939, although it did not appear to be farmed. The northern portion of the island was in open field, the central portion of the island was under canopy vegetation, and the southern portion was in scrub in 1939. As of 1967, the northern portion of the site was in advanced stages of open field succession, the central portion of the site is still under canopy and the southern portion of the site has developed sporadic canopy vegetation with some dense clumps.

The section of the site to the west of the island has undergone significant changes. In 1939 the site was partially wooded, with most of the area in open field. The southern portion of the site was partially wooded. The 1967 site is a combination of dense woodland stretching from the southern portion of the site north to the outer periphery of the woodland are areas in advanced stages of open field succession, with some overstory and some scrub.

The southern peninsula of McKinely Woods has remained very similar to its 1939 appearance. Some differences include areas maintained in 1939 now have grown out and are regenerating. Also, a development which occurred in 1939 along the southern tip of the site bordering the river has been removed as has a roadway. Both of these areas have begun the regeneration process, and are in stages of open field succession.

HAMMEL WOODS:

General Area: The area immediately surrounding Hammel Woods has experienced a good deal of development. North of the woods in 1939 was farmland which is now a series of buildings. Farmland bordered the two western corners of the site in 1939 were farmland, each with a homestead on it and active farmland. Now however, the northwest section, although still in farmland, has substituted two large industrial sites for what was previously active agriculture. Thus cutting the agricultural production of the site by about half. The southwest portion of the site has had its land and homestead replaced by a large parking lot. R.T. 66, not present in 1939, now cuts its way along the eastern boundary of the site. Still however the majority of the area remains in agriculture.

The Site: The site has experienced a good deal of change since 1939. The northern entrance of the site along with most of the northern rectangle were in 1939 open fields. Now however the two areas have become wooded with a substantial canopy.

A 1939 road extending south into the site has not been maintained, and is now covered over with vegetation. The southern entrance remains the same as in 1939.

To the north and east of the central parking area were open fields not in agriculture, now however only the area north of the parking lot remains in open field, the area to the east has begun to regenerate and is currently in late stages of open field succession, scrub and a few canopy and clump areas. In general, however the site has kept its mature, woodland character.

PLUM GROVE:

General Area: The area north of Goodenow Road has undergone intensive development including the Calumet Expressway which divides the site. Due north of the site a major quarry has scarred the area, with another quarry occurring to the northeast. The land to the south has been divided by a series of roads and minor developments.

The Site: The site has been unaltered except for the Calumet Expressway. Some open spaces have been reduced in size by invading vegetation.

FORSYTHE WOODS:

General Area: The general area has remained in agriculture much as in 1939. A few minor developments have occurred.

The Site: The site has experienced a few minor alterations. Agricultural expansion has eliminated a number of single trees which were located near a farmstead, which has since been removed. A new farmstead has gone up to the west of the original structure.

In order to accommodate increased agriculture the treeline near the stream has been seriously cut into. Trees located toward the center of the site have matured and expanded.

MESSENGER WOODS: Incomplete photos

LAMB WOODS: Incomplete photos

CONCLUSION:

The photographs substantiate the fact that the growth of Will County has caused a careless reduction of good agricultural soil, precious woodlands, water, and open space.

All the sites have witnessed the loss of precious agricultural soil, with the area around Hammel Woods bearing this out quite convincingly. Housing, industry, and parking lots have taken the place of corn and soybeans.

Raccoon Grove and Plum Grove indicate that precious woodlands have been stripped clean to support new housing developments. What is ironic is that although these sites were developed because of their wooded character, by the time they have accommodated all the tools and machinery of development, they have lost their wooded character.

With each new random development water and open space are reduced. If growth remains unplanned and uncontrolled many of the aesthetic open spaces in Will County may be eliminated, and many problems with displaced runoff water may become quite serious.

Hopefully the Forest Preserve can help in reducing these problems by acquiring precious lands, and setting an example of good land-use and public education.

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2. United States Government, Runyon Woods, 1939, University of Illinois, Map and Geography, 3-100,99,98
3. United States Government, Messenger Woods, 1939, University of Illinois, Map and Geography, 2-154
4. United States Government, Spring Creek, 1939, University of Illinois, Map and Geography, 2-43,192
5. United States Government, Joeseeph Zalar Woods, 1939, University of Illinois, Map and Geography, 2-144
6. United States Government, Hammel Woods, 1939, University of Illinois, Map and Geography, 2-53,52
7. United States Government, Van Horne Woods, 1939, University of Illinois, Map and Geography, 2-104,103
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9. United States Government, McKinely Woods, 1939, University of Illinois, Map and Geography, 2-68,69
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13. United States Government, Raccoon Grove, 1939, University of Illinois, Map and Geography, 4-18,19
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18. Will County Office Of Tax and Platting, Lamb Woods, 1967 Will County Planning Commission, 4-S
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27. Will County Office of Tax and Platting, Gerdes Woods, 1967 Will County Planning Commission, 19-D

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29. Will County Office of Tax and Platting, Wayne Lehnert Preserve,
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30. Will County Office of Tax and Platting, Raccoon Grove,
1967, Will County Planning Commission, 14-E
31. Will County Office Of Tax and Platting, Plum Grove, 1967
Will County Planning Commission, 15-P

DESIGN CONCEPTS OF WILL COUNTY FOREST
PRESERVE DISTRICT

The Will County Forest Preserve District was established on June 24, 1926.¹ The rules and regulations of the Will County Forest Preserve District were adopted from the Du Page County Forest Preserve District.² The data concerning the goals and policies of the Forest Preserve are helpful in that they establish a broad basis of design ideas and concepts which will tie all the different sites into a Forest Preserve System with continuity.

The Illinois revised Statutes specify that forest preserves may be created for the purposes of: "protecting and preserving the flora, fauna, and scenic beauties"; "the education, pleasure and recreation of the public"; and "to store flood waters, control other drainage and water conditions" and preserve ground water.³ The law also specifies that "gravel, sand, earth and any other material obtained from the lands and waters" owned by a forest preserve district may be sold by the district.⁴ State enabling legislation for forest preserve districts therefore recognizes the multiple uses and benefits that may be derived from a properly developed forest preserve.⁵

Open Space is an integral part of the forest preserve system and forest preserve sites should be designed to maximize open space benefits. Open Space at the ground level has a number of practical uses, including the following:

1. The preservation of the landscape with visual variety; to prohibit seemingly endless spreads of urban development.
2. The separation of incompatible urban developments (e.g. residential and heavy industrial areas).
3. A substitute for the unattractive and/or unstable developments that frequently occur at the fringe of a municipality.
4. The setting off of communities from one another creating a better sense of individual community identity.
5. The protection of airfield approach zones for mutual safety of the aircraft and the would-be local residents.⁶

Forest preserve sites are usually larger than the largest municipal parks and are usually geared to more passive types of recreation. The locations of preserves have typically been established more with reference to the site of natural resources than to the population served.⁷ The use of forest preserve sites are tended to be more of half-day to full-day outings instead of a few hours to play ball.



Forest preserves were first promoted in DuPage County on the basis of two concepts- public recreation and the preservation of flora and fauna.⁸ The latter objective was pursued by acquiring wooded lands, ponds and marshes where there already existed an abundance of living things or where reforestation and stocking were likely to succeed.⁹

Waters of present forest preserves are used during bird migration seasons to provide temporary havens for many species during their long trips.¹⁰ Such waters need to be kept reasonably free of pollution and they should be large enough to afford fish and water fowl with food and protection.¹¹ An appropriate minimum size for fish and game management purposes is one acre of surface area and ten to twelve feet of water in twenty-five percent of the surface area.¹²

FOOTNOTES

1. Illinois Revised Statutes, 1963, Chapter 57 $\frac{1}{2}$, Sec. 5.
2. Ibid, Sec. 6.
3. Forest Preserves Du Page County, Northeastern Illinois Planning Commission, 1965, pg. 7.
4. Ibid, pg. 7.
5. Ibid, pg. 7.
6. Ibid, pg. 8.
7. Ibid, pg. 9.
8. Ibid, pg. 14.
9. Ibid, pg. 14.
10. Ibid, pg. 15.
11. Ibid, pg. 15.
12. Ibid, pg. 15.

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LAND PARCELS OWNED BY THE WILL COUNTY
FOREST PRESERVE DISTRICT

TRACT NO. 1 MESSENGER WOODLAND

Description of Property:

+ S.E. $\frac{1}{4}$ N.E. $\frac{1}{4}$ and S.W. $\frac{1}{4}$ S.E. $\frac{1}{4}$ Section 27 and E. 9 chains S.E. $\frac{1}{4}$ N.W. $\frac{1}{4}$ S.E. $\frac{1}{4}$ Section 27 and E. $\frac{1}{2}$ S.E. $\frac{1}{4}$ Section 27 excepting the E. 6.80 chains, also excepting that part conveyed to trustees of M. E. Church of Hadley Circuit. All in Township 34 North and in Range 11, Homer Township, and containing 142.81 acres. x

Grantors:

Fannie M. White, Single and Flora White, Single. Residence, Geneseo, Illinois.

Conveyance:

Warranty deed reserving a vendor's lien until total purchase price is paid.

Date of Deed:

January 20, 1930. (Recorded February 18, 1930, record 729, page 75.)

Consideration:

\$17,851.25

Method of Payment:

\$5,000.00 paid February 8, 1930.

\$5,000.00 and 6% interest on balance due July 1, 1930.

\$5,000.00 and 6% interest on balance due July 1, 1931.

\$2,851.25 and 6% interest due July 1, 1932.

(All deferred payments payable at Farmer's National Bank at Geneseo, Illinois.)

In re Lease:

The above conveyance is subject to a lease to Bert C. Purdy expiring March 1, 1931, and assigned to the Forest Preserve District by Fannie and Flora White on January 20, 1930. Under the terms of said lease Mr. Purdy is to pay as rent the sum of \$300.00 as follows: \$50.00 on March 1, 1930; \$100.00 on August 1, 1930; and \$150.00 on December 1, 1930.

TRACT NO. 2 HAMEL WOODS

Description of Property:

Lots 1, 2, 3, 4, 5, and 6 Assessors Subdn. W. $\frac{1}{2}$ S.W. $\frac{1}{4}$ also prt. of N.W. $\frac{1}{4}$ Sec. 10 T. 35 N. R. 9, Troy Twp. containing 103.60 acres at \$325.00 an acre.

Grantor: John J. Crumby and Sadie Crumby.

Conveyance: Warranty Deed reserving a vendor's lien until total purchase price is paid.

Date of Deed: Nov. 25, 1930. (Recorded in book 740, page 98.)

Consideration: \$33,670.00 payable at First National Bank, Joliet, Ill.

Method of payment:

\$5170.00 paid on November 25, 1930.

\$3000.00 and 6% interest from date of deed on balance, due July 1, 1931.

\$5000.00 and 6% interest on balance due July 1, 1932.

\$5000.00 and 6% interest on balance due July 1, 1933.

\$5000.00 and 6% interest on balance due July 1, 1934.

\$5000.00 and 6% interest on balance due July 1, 1935.

\$5500.00 and 6% interest on balance due July 1, 1936.

TRACT NO. 3 HAMEL WOODS

Description of Property:

Part of E. $\frac{1}{2}$ S.W. $\frac{1}{4}$ Section 10 T. 35 N. R. 9 Troy Twp. containing 47.26 acres at \$325.00 an acre.

Grantors:

Charles R. Curtiss and Beatrice Curtiss.

Conveyance:

Warranty deed reserving a vendor's lien until total purchase price is paid.

Date of Deed:

Nov. 21, 1930. (Recorded in book 740, page 100.)

Consideration:

\$15,359.50 payable at First National Bank, Joliet, Ill.

Method of Payment:

\$5359.50 paid on November 25, 1930.

\$2000.00 and 6% interest on balance due July 1, 1931.

\$3000.00 and 6% interest on balance due July 1, 1932.

\$5000.00 and 6% interest on balance due July 1, 1933.

TRACT NO. 4 CANTIGHY WOODS

Description of Property:

N. 770 ft. E. $\frac{1}{2}$ N.W. $\frac{1}{4}$; also W. 160 ft. N. 1725 ft. said N.W. $\frac{1}{4}$ except N. 33 ft. thereof; also said N.W. $\frac{1}{4}$ except N. 1725 ft. all in Section 19, T. 34 N. R. 10, Jackson Twp., containing 36.95 acres at \$125.00 an acre.

Grantor:

Michael J. Breen and Margaret E. Breen.

Conveyance:

Warranty deed reserving a vendor's lien until total purchase price is paid.

Date of deed:

Nov. 28, 1930. (Recorded in book 739, page 410.)

Consideration:

\$10,363.75 payable at Joliet National Bank.

Method of Payment:

\$5363.75 paid on Nov. 28, 1930.

\$2500.00 and 6% interest on balance due July 1, 1931.

\$3000.00 and 6% interest on balance due July 1, 1932.

Description of Property:

That part of S.W. $\frac{1}{4}$ N.E. $\frac{1}{4}$ Sec. 19 T. 34 N. R. 10 lying N. & W. of center of Jackson Creek, also N. 1725 ft. N.W. $\frac{1}{4}$ Sec. 19 except W. 160 ft. thereof, also except N. 770 ft. of E. $\frac{1}{2}$ of N.W. $\frac{1}{4}$, also the E. 33 ft. W. 160 ft. N. 1725 ft. N.W. $\frac{1}{4}$ said Sec. 19, Jackson Twp. containing 81.9 acres at \$125 an acre.

Grantor:

Albert H. Bruning and Vida Bruning.

Conveyance:

Warranty deed subject to two trust deeds, one to Wm. Redmond, trustee, for \$3500.00 due Aug. 28, 1931, and one to Charles G. Pearce, trustee, for \$1500.00 due July 1, 1931.

Date of Deed:

Nov. 20, 1930. (Recorded book 739, page 419.)

Consideration:

\$10,237.50.

Method of Payment:

\$5237.50 paid on Nov. 28, 1930.

\$1500.00 trust deed dated Nov. 20, 1930 to Charles G. Pearce, trustee and interest at 6% due July 1, 1931.

\$3500.00 trust deed to Wm. Redmond, trustee due Aug. 28, 1931. Interest at 6% from Nov. 28, 1930 to Feb. 28, 1931 to be paid to Frank J. Wise. Interest from Feb. 28, 1931 to Aug. 28, 1931 to be paid to trustee.

TRACT NO. 6 McKINLEY WOODS ✓

Description of Property:

The North fraction, North of Illinois and Michigan Canal, of Section 31, excepting and reserving therefrom, so much thereof as is occupied by said Canal, and its waters, and a strip 90 feet wide on the North side of said Canal in Township 34 North and in Range 9, in Channahon Township, and containing 120.46 acres. ^{2150.40}

Grantors:

Matilda A. Patterson, Howard T. Patterson, Jennie M. Patterson, Harris A. Patterson, Nellie P. Hanson, Elizabeth Patterson and Harriet A. Patterson.

Conveyance:

Warranty deed reserving a vendor's lien until total purchase price is paid.

Date of Deeds:

March 30, 1931. Recorded in Book 740, pages 323 and 325.

Consideration:

\$18,069.00 payable at office of County Clerk.

Method of Payment:

To Harriet A. Patterson, the sum of \$2582.00 as follows:

\$296.00	paid March 31, 1931		
286.00	& 6% on balance due	July 1, 1932	
571.00	Same	" "	1933
714.00	Same	" "	1934
715.00	Same	" "	1935

To Matilda A. Patterson, Howard T. Patterson, Jennie M. Patterson, Harris A. Patterson, and Elizabeth Patterson, the sum of \$15,487.00 as follows:

\$1,773.00	paid March 31, 1931		
1,714.00	& 6% on balance due	July 1, 1932	
3,429.00	Same	" "	1933
4,286.00	Same	" "	1934
4,285.00	Same	" "	1935

in 1671 25 + 100

Description of Property:

That part of the S.W. $\frac{1}{4}$ of Sec. 10 Twp. 35 N. Range 9 described as follows: Beginning at a point in the E. line of said S.W. $\frac{1}{4}$ which is 524.45 ft. S. of the N.E. Corner of said SW $\frac{1}{4}$ thence S. 89° 57' W. parallel to the N. line of said S.W. $\frac{1}{4}$ 377.3 ft., thence S. 8° 55' E. 60.73 ft., thence N. 89° 57' E. parallel to the said N. line of the S.W. $\frac{1}{4}$ 368.6 ft. to said E. line of said S.W. $\frac{1}{4}$, thence N. 0° 41' W. along said E. line 60.0 ft. to place of beginning, containing 0.51 acres for the sum of \$350.00. x

Grantors:

Charles R. Curtiss and Beatrice Curtiss

Conveyance:

Warranty deed subject to a lease to James Policandriotes expiring March 1, 1935

Date of Deed:

August 7, 1931.

Consideration:

\$350.00 paid August 7, 1931.

Method of Payment:

Cash.

Recorded in the office of the Recorder of Deeds in Book 733, Page 203.

Tract No. 8 GERDES WOODS

Description of Property:

That part of Lot 8 and that part of the West 3 acres of Lot 6 Kibben's Subdn. of part of East half of Joseph Laughton's Indian Reservation Section 10, Township 33 North Range 11 Wilton Township described as follows: Beginning at the N.W. Corner of said Lot 6, thence East along the North line of said Lot 6 396 feet to the East line of said West 3 acres of Lot 6, thence South along said East line 290 feet to a point in the North line of the highway which is 40 feet North of the South line of said Lot 6, thence Westerly along said North line to a point in the West line of said Lot 8 which is 55 feet North of said South line of Lot 6 extended West, thence North along the West line of Lot 8 645.26 feet, thence East 380.16 feet to the East line of Lot 8 and thence South along said East line 370.26 feet to place of beginning, containing 8.26 acres. x

Grantors:

Harry G. Gerdes and Laura K. Gerdes.

Conveyance:

Warranty deed conditioned that if said grantee ceases to use said real estate for Forest Preserve purposes as contemplated by law, then the title of said real estate reverts to the grantors, their heirs, devisees or assigns.

Date of Deed:

August 8, 1931.

Consideration:

Donated by grantors to the Forest Preserve District of Will County.

Tract No. 9 Legion Park, Lockport

Description of Property:

Part of the S.E. $\frac{1}{4}$ of Section 14, in Township 36 North and in Range 10 East of the 3rd Principal Meridian of Lockport Township. Test of Description on Page 147, containing 20.9 acres.

Grantors:

Anna Gleason and John L. Gleason, her husband
Theresa Lesch and George P. Lesch " "
Albert Seiler, a bachelor.

Conveyance:

Warranty Deed reserving a vendor's lien until total purchase price is paid.

Date of Deed:

September 15, 1934 (Recorded in Record 811, page 31)
(" " " 810, " 266)

Consideration:

\$2900.00

Method of Payment:

\$10.00	paid on	May 16, 1935			2891.00
300.00	and 6%	interest from date of Deed	Due	Sept. 15, 1935	2591.00
300.00	and 6%	" on balance due	Sept. 15, 1936		2291.00
300.00	and 6%	" " " " 15, 1937			1991.00
300.00	and 6%	" " " " 15, 1938			1691.00
300.00	and 6%	" " " " 15, 1939			1391.00
300.00	and 6%	" " " " 15, 1940			1091.00
300.00	and 6%	" " " " 15, 1941			791.00
300.00	and 6%	" " " " 15, 1942			491.00
300.00	and 6%	" " " " 15, 1943			191.00
190.00	and 6%	" " " " 15, 1944			

Tract No. 10 Peter Conroy Property in Channahon
Containing 4 Tracts.

Description of Property:

Outlot 14, Merrick and Schermerhorn's Subdivision; also part of the N.W. $\frac{1}{4}$ of the N.W. $\frac{1}{4}$ of Section 20; also parts of the West fraction of Section 29, all in Township 34 North, Range 9 East of the 3rd Principal Meridian, Channahon Township, containing 130 acres.

Grantor:

Receiver (William Knutson) Joliet National Bank

Conveyance:

Warranty Deed reserving a vendor's lien until total purchase price is paid.

Date of Deed:

Feb. 23, 1937, recorded in Book 810, page 583.

Consideration:

\$3250.00

Method of Payment:

\$500.00 paid Feb. 18, 1937
\$2750.00 and 5% interest due July 1, 1937

Description of Property:

That part of Lots 21 and 22, lying East of the right of way of the Chicago and Southern Traction Company, in Ogden Subdivision of Raccoon Grove Reserve, in the Township 34 North and in Range 13 East of the 3rd Principal Meridian, in Monee Township, Will County, Illinois, according to the Plat thereof, recorded in Book "U", Pages 285 and 286, containing 57.72 acres.

Grantors:

George E. Geuther, Helen M. Geuther, Edith Werner, Amelia Flaherty and Augusta Alexander.

Conveyance:

Warranty Deed

Date of Deed:

Dec. 23, 1937, recorded in Book 845, page 269

Consideration:

\$5800.00

Method of Payment:

\$5800.00 cash, Paid Jan. 3, 1938.

Tract No. 12 Crete Township

Description of Property:

"The West Three Fourth (3/4) of the North Half (1/2) of the North East Quarter (1/4) of Section 33 in Township 34, North, Range 14 East of the Third Principal Meridian, in Crete Township, Will County, Illinois, except the North 739.63 feet thereof, said tract hereby conveyed containing 26.61 acres more or less.

Also, all that part of the North West Quarter of Section 33 that lies Easterly of the center line of the public Highway extending Northerly and Southerly across said Quarter Section and commonly known as the Chicago and Vincennes Wagon Road, the Dixie Highway and State Route No.1, except the North 739.63 feet of said Quarter Section and also except a tract comprising 3.045 acres, more or less in the South West Corner thereof described as follows: Commencing at a point on the South Line of said Quarter Section intersected by the center line of the said Dixie Highway and run thence East along said South Line 373.37 feet to a point; thence North at right angles with said South Line a distance of 350 feet to a point; thence West parallel with said South Line to intersect a point in the center line of said Dixie Highway; thence Southerly along said center line of Dixie Highway to the Point of commencing, said tract hereby conveyed containing 60 acres more or less."

Grantors:

Ferris E. Gaines and Lillie D. Gaines

Conveyance:

Warranty Deed

Date of Deed:

November 1, 1938, recorded in Book 846, Page 488

Consideration:

\$8661.00

Method of Payment:

\$1861.00 Paid on November 1, 1938

1700.00 and 4% Interest from Date of Deed due November 1, 1939

1700.00 and 4% Interest on Balance due November 1, 1940

1700.00 and 4% Interest on Balance due November 1, 1941

1700.00 and 4% Interest on Balance due November 1, 1942

Material reproduced from minutes of Will County Forest Preserve District. Minutes located in the WCFPD office.

McKinley Woods

Location of Property; Section 19, Township 34N, Range 10E.

Grantors: Micheal J. Breen and Margret E. Breen

Date of Deed: Nov. 28th, 1930

Consideration: \$5,500

Document No. 446131

McKinley Woods

Location of Property: 19-35N-10E

Grantors: Albert H. Bruning and Vida Bruning

Date of Deed: Nov. 20, 1930

Consideration; \$10,237.50

Document No. 446157

Plum Grove

Location of Property: Prt Ne $\frac{1}{4}$ Sec. 33-34-14

Grantors: Ferris E. Gaines and Lillie D. Gaines

Date of Deed: Nov. 1, 1938

Consideration: \$1,861

Acres: 86.61

Document No. 512430

Van Horne Woods

Location of Property: Prt SW $\frac{1}{4}$ Sec. 17-35-12

Grantors; Abby Viola Van Horne, Ernest F. Dunlop, H. Adelo
Cooper, George V. Me garry, John A. Klein and
Esther V. Klein.

Date of Deed: April 11, 1942

Consideration: 10,000

Document No. 556511

Location of Property: Prt. NW $\frac{1}{4}$ Sec. 20-35-12

Grantors: Anna W. Cleveland

Date of Deed: Sept. 10, 1951

Consideration: \$1.00

Document No. 696475

Van Horne Woods

Location of Property: SW $\frac{1}{4}$ Sec. 20-35-12

Grantor: Anna W. Cleveland

Date of Deed: Sept 12, 1955

Consideration: 10.00

Document No. 795160

Location of Property: Prt. Lot 1 Sec. 20-35-12

Grantor: Joseph H. Hartley, County Clerk

Date of Deed: March 21, 1958

Consideration; No payment of taxes

Document No. 900385

Veterans Memorial Woods

Location of Property: Prt. SW $\frac{1}{4}$ Sec. 23-37-10

Grantor: Chawson- Western Oil and Developement Co.

Date of Deed: Feb. 1, 1966

Consideration: \$128,887.50

Document No. R66-2491

Lamb Woods

Location of Property: S $\frac{1}{2}$ of SE $\frac{1}{4}$ 25-36-10

Grantor: Vera Cagwin

Date of Deed: July 1, 1971

Consideration: \$10.00

Document No. R71-17321

Location of Property: 25-36-10

Grantor:

Date of Deed:

Consideration:

Document No. R71-17321

Joseph Zalor Preserve

Location of Property: E $\frac{1}{2}$ of NE $\frac{1}{2}$ Sec. 25-35-10

Grantor: Union Bank and Trust Co. of Joliet

Date of Deed: Jan, 24, 1972

Document No. R72-8578

Joseph Zaylor Preserve

Location of Property: 25-35-10

Grantor:

Date of Deed:

Consideration:

Document No. R72-8578

Not Named

Location of Property: NE $\frac{1}{4}$ 36-35-10

Grantor: Chicago Title and Trust Co.

Date of Deed: Aug 3, 1971

Consideration: \$10.00

Document No. R71-17887

Hunter's Woods

Location of Property: E $\frac{1}{2}$ of SW $\frac{1}{4}$ Sec. 24-35-12

Grantor: Ellsa Welle

Date of Deed: March 21, 1973

Consideration: 10.00

Document No. R73-07979

Location of Property: 24-35-12

Grantor: M.N. Elsenau

Date of Deed: March 21, 1973

Document No. R73-07980

Valley View

Location of Property: W $\frac{1}{2}$ of SW $\frac{1}{2}$ 20-35-12

Grantor: Federal Savings & Loan Insurance Co.

Date of Deed: Oct. 15, 1974

Document No. R74-25866

Consideration: \$10.00

Spring Creek

<u>Location</u>	<u>Grantor</u>	<u>Date of Deed</u>	<u>Document No.</u>
1-35-10	Grace M. Brumund	2-13-72	R73-08248
2-35-10	Joseph Marino	5-29-73	R73-16083
"	Will Co. of Transportation	9-13-73	R73-32747
"	Marquette National Bank 6105	11-19-73	R73-35045
"	John Kolenc	12-04-73	R73-36168
"	Joseph Jasurda	12-04-73	R73-36171
"	John Freberg	12-14-73	R73-36938
"	William E. Lindblad	12-27-73	R73-37648
"	Emil Madarik	12-28-73	R74-00034
"	Marie Mulholland	01-04-74	R74-00093
"	James Balma	1-23-74	R74-02070
"	Roscoe S. Web	1-30-74	R74-02933
"	Bank of Naperville 1412	2-1-74	R74-03097
"	Mary Kapcan	2-12-74	R74-03747
"	Andrew Budahazzi	2-20-74	R74-04180
"	Joseph F. Uremovic	3-5-74	R74-05035
"	John Valek Jr.	3-8-74	R74-05729
"	Valentine R. Malnar	4-24-74	R74-09360
"	Richard Swingle	4-26-74	R74-10320
1-35-10	Robert Lenci	6-25-74	R74-15302
2-35-10	Virgil Smith	6-27-74	R74-15577
"	Robert Lenci	6-27-74	R74-17647
"	Clarence Fox Jr.	2-10-75	R75-03538
"	Anna W. Franson	3-31-75	R75-07276
"	Laurence L. Green	3-31-75	R75-07277
"	Forest Park Church	3-31-75	R75-07398
"	Frank J. Juresic	7-18-75	R75-20568

Forsythe Woods

<u>Location</u>	<u>Grantor</u>	<u>Date of Deed</u>	
31-33-10	Union National Bank & Trust Co.1001	2-1-74	
			Document No. R74-02766
30-33-10	" " " " " 1522	2-1-74	
			Document No. R74-02767

Thorn Creek Woods

<u>Location</u>	<u>Grantor</u>	<u>Date of Deed</u>	<u>Document No.</u>
11-34-13	Philip H. Mellender	7-20-74	R74-18089

Document No. refers to the publication number Of the micro film deed at Will County Records Office.

Materials recieved from Will County Records Office.

THE GEOLOGICAL HISTORY OF WILL COUNTY

Historically, the geology of Will County is one of unique and exciting proportions. Will County has been shaped and molded by the natural forces since the preCambrian times, and particularly because of glaciation, displays a topography with much variation. Also as a result of these natural processes Will County abounds with an abundance of readily accessible natural resources--limestone, dolomite, sand and gravel, some coal, clay, and peat. The natural processes have also created many topographical features which hold high aesthetic value--scenic rivers and stream valleys with their dramatic bluffs, bogs, and rolling moraines. The Des Plaines River has become a major transportation link between the Great Lakes and the Mississippi River. With these abundant natural resources Will County has supported the growth of major cities, industry, and agriculture.

An understanding of the geological history of Will County can aid one in understanding how man has adapted to and exploited the natural resources of the county. This understanding can also aid one in predicting what the potential future use of these natural resources may be or in establishing a base of information to back up any policy for future natural resource use.

The geological history of Will County is summarized in these following pages, beginning with the earliest bedrock formations found to lie directly under the glacial till (under the assumption that they would be the deepest deposits to have much economical significance), and continues through the latest natural processes affecting the geology of the county. An interpretation of the geological history citing the relevance of this data to planning and particularly to the planning of the Will County Forest Preserve District then follows.

Bedrock formation

The earliest bedrock formation to lie directly under the glacial till of Will County is that of the Cincinnati Series of the Ordovician Period. (See Bedrock map) The Cincinnati formation consists dominantly of gray and green shales, but it includes brown, red, and black shales. It has a persistent limestone formation in the middle. The Ordovician Period was an era in which most of Illinois was under the sea. The sea received continuous loads of sediment from the surrounding land areas which suffered great reduction under the destructive action of the atmosphere and erosion. This accounts for the early shale deposits. Then the seas became shallow and abundant with sea life. Thus the limestone formation. And then toward the end of the Ordovician Period the seas were covered by a great sheet of mud, over 100 feet thick, accounting for the upper shale deposits. The seas then shrank as the land emerged and the sea life had to migrate to deeper parts, but many were exterminated. Thus the Ordovician Period came to an end. Today we find these Ordovician deposits to be a rich source of sea life fossils, but their economic significance is minimal.

With the changes which closed the Ordovician Period, most of the interior of North American continent became dry land, but as the Silurian Period advanced the epicontinental sea once more covered this area. The earliest of the Silurian deposits are those of the Alexandrian Series. The Edgewood and Kankakee formations are the two Alexandrian members which underlie part of Will County. (The Edgewood and Kankakee formations have not been mapped separately from the later Silurian deposits, the Niagaran formation, and thus all are included in the Silurian designation, see Bedrock Map)

The Edgewood formation was deposited in a sea which advanced from the south. It is composed largely of dolomite, but contains some limestone and chert. It con-

tains abundant fossils of brachiopods and trilobites (both ancient sea organisms) and thus is a rich source for archeological studies. Edgewood formations have not been mined commercially though, unless their deposits were ten feet or less in thickness, and when they occurred along with the later Silurian deposits.

After the seas which formed the Edgewood formations withdrew, a sea advanced from the north and in it the Kankakee formation was laid down. The Kankakee formation is a dolomite formation with the dolomite occurring in wavy beds 1" to 3" thick separated by thin partings of shale. The topmost layer of dolomite in this formation is exceptionally pure and contains an ancient sea life fossil which is used to distinguish it from the later Niagaran deposits. The Kankakee formation is widely quarried and crushed for aggregate and agricultural limestone as well as for its archeological treasures. Both the Kankakee and Edgewood formations are exposed in the southwest part of Will County, along the Des Plaines and Du Page Rivers.

Sometime after the withdrawal of the late Alexandrian seas, another sea in which the Niagaran formation was deposited advanced southward from the Hudson Bay region and eventually covered a large part of North America. Over wide areas a relatively pure dolomite was formed, showing that the sea was fairly clear, the surrounding land low, and the rivers sluggish. The Niagaran formation thus abounds with a wealth of fossils. This formation is the bedrock which underlies the majority of Will County and has been exposed in numerous places along the Des Plaines River, the Du Page River, and their tributaries. It has become of major economic significance with much quarrying of the dolomitic limestone for use in building blocks, concrete aggregate, and as lime. It has, as mentioned, a wealth of fossils, all to the delight of the archeologist. (See Silurian deposits on the Bedrock Map)

The Devonian and Mississippian Periods followed the Silurian Period but have left no traces of their presence, except in a few crevices of the Silurian bedrock. The soft deposits of these periods eroded from this area or the area never received any sediments because it was above the sea.

During the next period, the Pennsylvanian, the seas repeatedly advanced over the Will County area from the south. Consequently, the deposits are alternately marine and nonmarine. Thus layered deposits of sandstone, siltstone, shale, nodular limestone, claystone, coal, and gray shale were formed. The coal in these deposits is what has made the Pennsylvanian deposits so important to man. In Will County these deposits underlie only the most extreme southwest corner and have been actively stripped of much of the coal deposits. (See Bedrock Map)

There is no evidence to show that the Will County area was under the sea after the Pennsylvanian Period. Probably rivers and winds caused deposition of some material, but between the Pennsylvanian and the Pleistocene period (the age of glaciation), erosion, rather than deposition, was the dominant process in this area. That some deposits were formed during this period is indicated by the presence of a homogeneous, light bluish-gray, non calcareous clay found in irregular pockets or channels in the dolomite.

Glaciation

With the arrival of the ice age the bedrock became covered by deposits brought by the glaciers from farther north. These deposits, called drift, mantle more than 95 per cent of the area and consist of unconsolidated till, silt, clay, sand, gravel, and peat. They are sharply differentiated and readily distinguished from the much older, consolidated bedrock formations.

The glaciers of the first glacial period, the Nebraskan, were not believed to have reached Will County. There is no direct surficial evidence of the next two

glacial periods, the Kansan and Illinoian, but some evidence exists that the glaciers of these periods eroded the surface of the bedrock formations.

Particularly evident is the buried Hadley Valley, located just northeast of Joliet. The Hadley Valley is a valley in the Silurian bedrock, entrenched nearly 100 feet. Geologists postulate that valley may have been formed by the overflow of a glacial lake, and ancestral Lake Chicago, which formed in the Lake Michigan Basin when the Illinoian glacier retreated to the north. It was then overridden by the Wisconsinan glaciers and partially filled with sand and gravel, and eventually covered by glacial till, averaging 30 feet thick. The valley, filled with the sand and gravel and surrounded on the sides and bottom by a slowly permeable dolomite bedrock thus became an underground aquifer, approximately two miles wide and sixty feet in depth. This aquifer is now used as Joliet's water supply.

The glacier of the last glacial period, the Wisconsinan, made their advance as far south as central Illinois. Numerous moraines were formed as the glacier became stationary while on its recessional route north. Eventually the glacier receded into Will County area. It advanced slightly to form the oldest of the moraines in Will County, the Minooka moraine, under its edge.

The Minooka moraine is a low ridge of drift, rarely more than two miles wide located along the west boundary of Will County. It is characterized by gentle slopes, noticeably steeper on the west than on the east, and has topography much too smooth for a typical terminal moraine. The moraine, or till ridge, seems to be cut off abruptly by the Illinois River, at which it ends in a steep bluff more than 100 feet high. This bluff is obviously due to river erosion. The moraine is one of the old moraines of the Yorkville Till Member, and is thus characterized by gray clayey till, generally with few cobbles and boulders but with abundant small pebbles. It is slightly more clayey and darker in color than the till of the

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younger moraines of the Yorkville Till Member (the Rockdale, Wilton, Center, and Manhattan moraines). Like the other late-Wisconsinan drift sheets, the Minnoka drift is covered in most places by a layer clayey loam, deposited by the wind after the retreat of the ice.

Following the deposition of the Minooka drift, there was an extensive retreat of the glacial ice-sheet to the northeast. As it withdrew, and later, while it again advanced, the waters that flowed from the melting ice carried with them much debris from the glacier and by the deposition of this material, an extensive plain composed of sand and gravel was formed in front of the ice. Such a plain is called an "outwash plain", and the one deposited to the east of the Minooka moraine is called the Joliet Outwash Plain. (See Geological Features Map) The thickness of the deposit varied, due largely to inequalities of the surface on which it was laid down, but also to variations in the supply of materials at different places. The tendency, however, was toward the formation of a fairly smooth sheet of gravel sloping gently downward to the west away from the ice edge. This outwash plain, along with the later Plainfield Gravel Plain, has become of major economic significance with the extraction of large deposits of gravel.

Following the formation of the Joliet Outwash Plain, the edge of the ice-sheet advanced again, became stationary, and formed the Rockdale moraine (See Glacial Features Map). That it held this position for some time is evinced by the fact that the Joliet Outwash Plain gravels are covered by 50 feet or more of till deposited by the ice of this epoch. On the whole, the Rockdale till sheet, especially in the southern part is less smooth than the Minooka drift. Gentle swells with low hillocks and shallow saucer-like undrained areas are common, and in places there are slight hints of the "knob-and-kettle" type of topography that is typical of a terminal moraine.

In constitution, the Rockdale till does not differ noticeably from the Minooka. Both are relatively pure clay, comparatively free from stones larger than small grains. The Rockdale, however, has slightly less clay than the Minooka till as well as being lighter in color. In general, the Rockdale drift overlies the Joliet Gravel Plain. Where the gravel sheet is absent, the Rockdale till rests directly on the Minooka groundmoraine (that till deposited as the glacier receded from the Minooka moraine) or on the Silurian dolomite bedrock.

As the ice which deposited the Rockdale drift retreated slightly from its line of maximum advance, most of the drainage became confined to a few main channels. These included the Des Plaines Valley near Lemont, the Rock Run slough, the Mink Creek slough, the Lily Cache slough, and the East Branch of the Du Page River. These channels were not pronounced valleys or sloughs as they are now, but probably only slight depressions due to the irregularities in the thickness of the drift sheet. They had channels whose floors were all nearly the same elevation, an elevation higher than the present slough bottoms. The present sloughs had their beginnings at this time, and have been valleys ever since, although with little doubt, they all owe their present depth to later erosion in connection with the outflowing waters of Lake Chicago.

The glacier continued to retreat to the east and northeast-how far has not been determined. The glacier did retreat beyond the present limit of the Valparaiso moraines and reformed into a different shape before advancing again and depositing the Valparaiso morainic system, partially overlapping the Rockdale drift.

The Valparaiso morainic system is differentiated into nine moraines, which are closely spaced and appear to represent minor pulses in the ice front or perhaps only brief stands during the glacier's retreat (See Geological Features Map).

This morainic system is a broad(10miles wide) u-shaped belt of drift which parallels Lake Michigan, about 20 miles away. The topography of the Valparaiso morainic system is rough and is the most pronounced body of morainic material of the late-Wisconsinan age in Illinois. It is more characteristic of the terminal moraine than any other drift in the area. The till of the moraine consists of gray to light brownish-gray clay.(See Geological Features Map)

Rapid melting of the Valparaiso glacier produced a large volume of meltwater. Cobbly and bouldery gravel was deposited near the front of the glacier, and finer gravels and sands were carried down the valleys, primarily those valleys formed on the Rockdale drift.

At the peak of meltwater discharge from the Valparaiso glacier, meltwater from other glaciers were diverted in the Kankakee Valley, thus causing the Kankakee Flood. A large portion of the southwestern part of Will County was flooded, forming Lake Wauponsee. These waters flooded over the Minooka moraine, washed away a large segment of it, and smoothed the surface of the remaining part. Much of the Rockdale moraine was also covered by the floodwaters, but several higher segments became islands. The lake was short lived however, as the water found an outlet through the Marseilles moraine, west of Will County, and no lake deposits were formed. This same are was under a lake long before the Minooka moraine, however, and thus is still considered a lake plain.(See Geological Features Map)

After the building of Valparaiso Morainic System, the ice retreated an unknown distance before readvancing to build the Tinley moraine, the last moraine deposited in Will County.(See Geological Features Map). This moraine also has a rough topography, similar to that of the Valparaiso moraine. Its composition is that of gray clayey till. Lake silts and clays, as much as 20 feet thick, accumulated in a lake which formed along the front of the moraine because the glacial

ice blocked any eastward drainage.

When the ice retreated from the Tinley moraine the surface behind the moraine was lower than the Tinley drainage through the Des Plaines and Sag channels and the meltwater soon flooded this area. Thus the initial stage of Lake Chicago, called the Glenwood lake stage, was formed.

As the ice continued to retreat, the lake grew in size. The waters of this lake finally found their escape over the Valparaiso moraine and into the valleys already formed at an earlier age- the Mink Creek slough, the Rock Run slough, the Lily Cache slough, and the Des Plaines Valley at Lemont. At this time these valleys were filled with gravel outwash, largely from the Valparaiso ice sheet. Gravels that had previously been deposited in them were partially swept out to merge with gravels of the Joliet Outwash Plain. The waters which carried these gravels out from the sloughs, as soon as they were unrestricted by the slopes bordering the sloughs, spread out and formed distributaries, dropping much of their load.

The lake water continued to erode the valleys, until, at the 638' level, the lake became stationary. The outlet waters had encountered a sandbarrier near Lemont. The sandstone barrier was eventually eroded and once more the outlet was rapidly lowered since the glacial drift offered only a slight obstacle. As the glacial outlet waters continued to erode, the channels through the Mink Creek slough, the Lily Cache slough, and eventually the Rock Run were abandoned as the waters had eroded down to bedrock, at an elevation equal to the Lake Chicago level, and were no longer able to erode any farther. Consequently, the outlet drained south across an intermorainal area, continued to erode the glacial till, and formed the beginnings of what is the present Des Plaines River Valley. Erosion continued until the outlet waters encountered another bedrock sill, this time at the 590' level, near Lockport. Downward cutting of the valley was immediately

arrested, while the surface of the rock was widely stripped of its covering of drift and gravel. The bedrock sill slowly eroded and eventually was removed. The outlet river once more flowed unobstructed and Lake Chicago correspondingly lowered to a level 20 feet above the present level of Lake Michigan.

The glacier, which had been continually receding, finally receded far enough north so that Lake Chicago was able to drain to the Atlantic Ocean. The glaciers advanced twice more and twice more Lake Chicago rose to a level 12 feet above the present Lake Michigan. At this level the Lake Chicago outlet was shut off by a large reef of sand.

Thus the Lake Chicago outlet was abandoned. In the place of a great river whose volume was perhaps comparable to the present St. Croix River, was left the little Des Plaines River, a stranger in the district, which struggled into the great valley as if by accident. As a result the valley of the extinct outlet was not left wholly unoccupied by drainage, but serves as a valley for a river several times too small for it.

Soon after the glaciers melted, thin deposits of wind-blown silt, called loess, mantled the glacial drift. Much of this loess has been washed into the valleys and deposited in the alluvium. It is now present only on the flatter, uneroded upland areas. It is a fine grained, non-calcareous, clayey silt distinguished from the till below by much better sorting, lower clay content, and the absence of pebbles. Because of most of this loess was blown from the Illinois and Mississippi Valleys during the Wisconsinan glaciation, it is thicker in the western part of the county, where it started accumulating while the ice was still present in the area of younger drift.

Other depositions which began immediately following the melting of the glaciers and that continued for some time include Parkland sand, Grayslake peat, and Cahokia alluvium. The Parkland sands consist of well-sorted, medium grained

sand that was blown from the glacial outwash or from beach deposits of lakes into dunes and sheet-like deposits around the dunes. The most extensive areas of these sands are along the Kankakee River Valley south of Wilmington. They are now largely forested and most were stabilized with vegetation soon after they were formed. Many of these areas are quarried today for their high quality sands.

The Grayslake Peat occurs in areas bordering existing lakes or in depressions which were previously lake basins. The Grayslake Peat, although dominantly peat, also includes organic silts (muck) and contains interbedded silts and sands that represent local slopewash in the basins. This peat has been collected and burned for fuel, but is presently collected and used for horticultural purposes.

The Cahokia Alluvium consists largely of sandy silt that was deposited on the floodplains of streams and rivers. The alluvium generally is poorly sorted and irregularly bedded, and contains lenses of sand and gravel, particularly in the lower parts. The alluvium is largely sand and gravel at the mouths of many tributary valleys and in bars along the present channels.

Summary and Analysis

To relay the geological history of Will County to the reader is only a part of the purpose of this paper. This geological history must be analyzed and interpreted to bring forth its relevance to the planning process and particularly to the planning of the Will County Forest Preserve District.

As the reader can see, Will County's geology is unique. The bedrock which underlies most of the county has will continue to provide the people with relatively inexpensive sources of dolomite and limestone. The majority of this bedrock to be mined will probably be done along the rivers where it is already exposed. Thus there will always be an economic incentive to quarry the river beds. Thus the potential for unaesthetic conditions exist. The Pennsylvanian

bedrock deposits have yielded coal for mans use as fuel. These areas which have not been mined of coal will continue to hold economic value as fuel resource. Those areas already mined offer potential for recreational development and for studies in vegetation succession. The Hadley Valley is a unique geological feature which must be protected as a water source. Forest preservation over this buried aquifer would be ideal.

The massive glacial outwash areas which exist along the streams, rivers, and in the large outwash plain in the west part of the county are presently mined and offer potential for much more mining. These also then hold economic value in their resources. Present and future mining could be coordinated with future recreational development in an attempt to keep the land under continued use, while retaining aesthetic.

The glacial topography in Will County offers a unique set of circumstances relevent to planning. The glacier created a rolling topography, in which the drainage is often slow or incomplete. This, coupled with the high clay content of the glacial till, imposes restrictions on mans use. Man can only gain from studying this glacial geology and understanding these limitations. Through these studies man can also find natural areas in the county that merit preservation- ie. bogs, floodplains, unique vegetation habitats etc. The present river valleys, as a result of the lake Chicago outlet, are quite large, quite dramatic. These offer unique potential for scenic preservation, but at the same time receive pressures from housing demands.

An understanding of the geological history, if it does nothing else, can aid the people in understanding why the County is as it is today, and in particular how the present Forest Preserve sites were formed. This understanding can thus help in planning for use and enjoyment of these areas and any future sites.



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POPULATION STUDY

McGraw-Hill
1917

NEILS
EXAIR Miller
~~SAITHE~~ BOYLE

WILL COUNTY POPULATION STUDY

I. Population

A. Regional Population Study

1. population % change of Northeastern Illinois Counties
 - a. 1970 - 1975
 - b. 1975 - 1985
 - c. 1985 - 2000
2. County Populations and Projections;
Cook, DuPage, Grundy, Kane, Kankakee, Kendall,
Will, and Lake County, Indiana
3. County Population Graphs
4. Northeastern Illinois County Information
 - a. fertility rates
 - b. net migration
 - c. school age population
 - d. labor force age population
 - e. population aged 65 & over
 - f. minority race percentages
 - g. components of population change
 - h. negro and other races
 - i. commuting patterns

B. Will County Population Study

1. Townships
2. population % changes of Will County Townships
 - a. 1970 - 1975
 - b. 1975 - 1985
 - c. 1985 - 2000
3. Township Populations and Projections
4. Township Population Projection Graphs
5. Township Population Information
 - a. male
 - b. female
 - c. white
 - d. negro
 - e. other
 - f. median age
 - g. under 18
 - h. 65 & over
 - i. households
 - j. employment
6. Surrounding Cities in Northeastern Illinois
 - a. population map and information
7. Cities in Will County
 - a. population map and information

8. City Population Information

- a. 1970 population
- b. % change
- c. % under 18
- d. % 65 and over
- e. median age

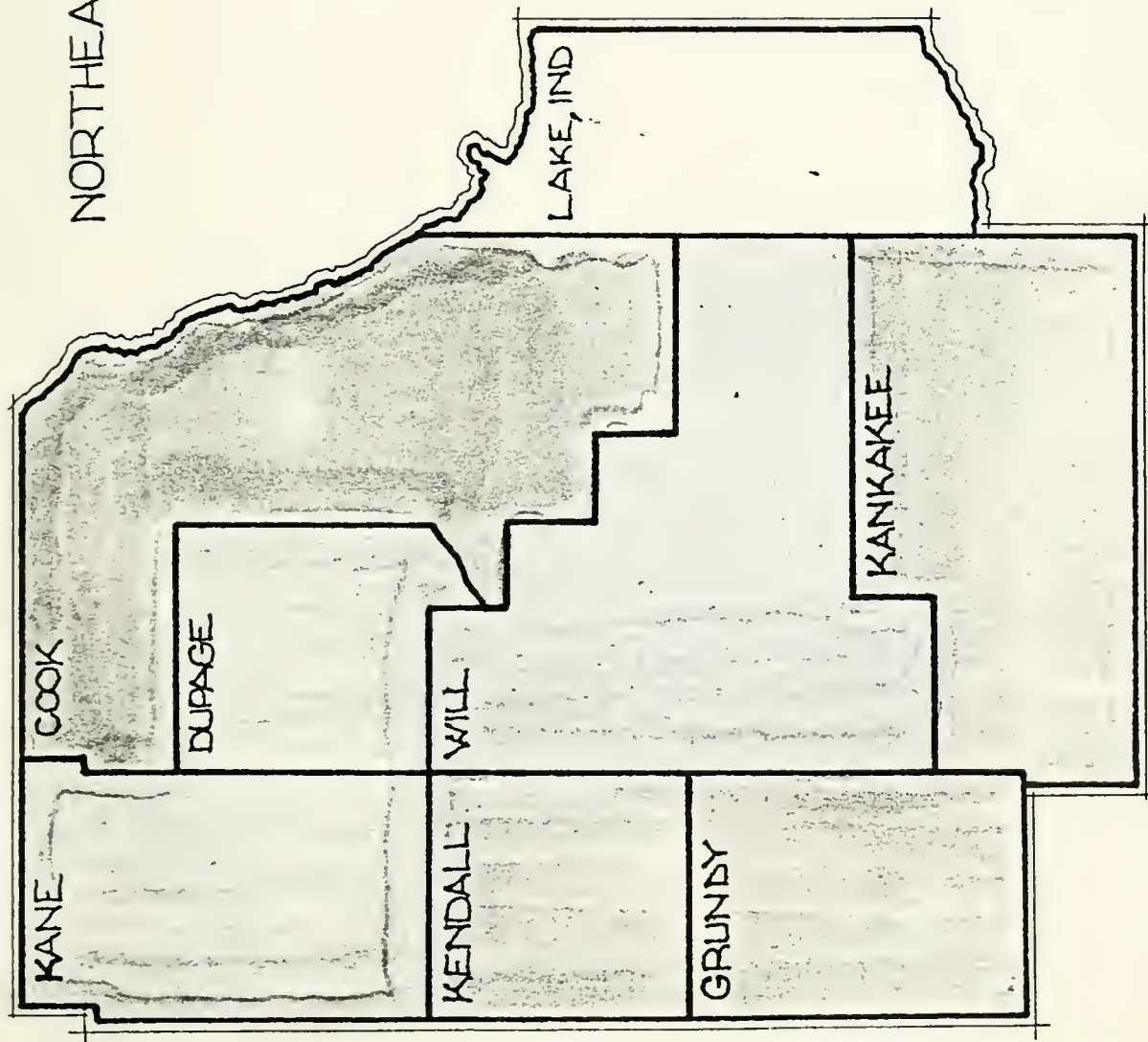
9. City Population Projections

- a. based on township population projection increases
- b. based on city population increases
- c. based on transportation routes

C. Population Summary

D. Sources

NORTHEASTERN ILLINOIS COUNTIES



POPULATION % CHANGE 1970 - 1975

COOK - 2.5%

DUPAGE 5.1%

GRUNDY -1.5%

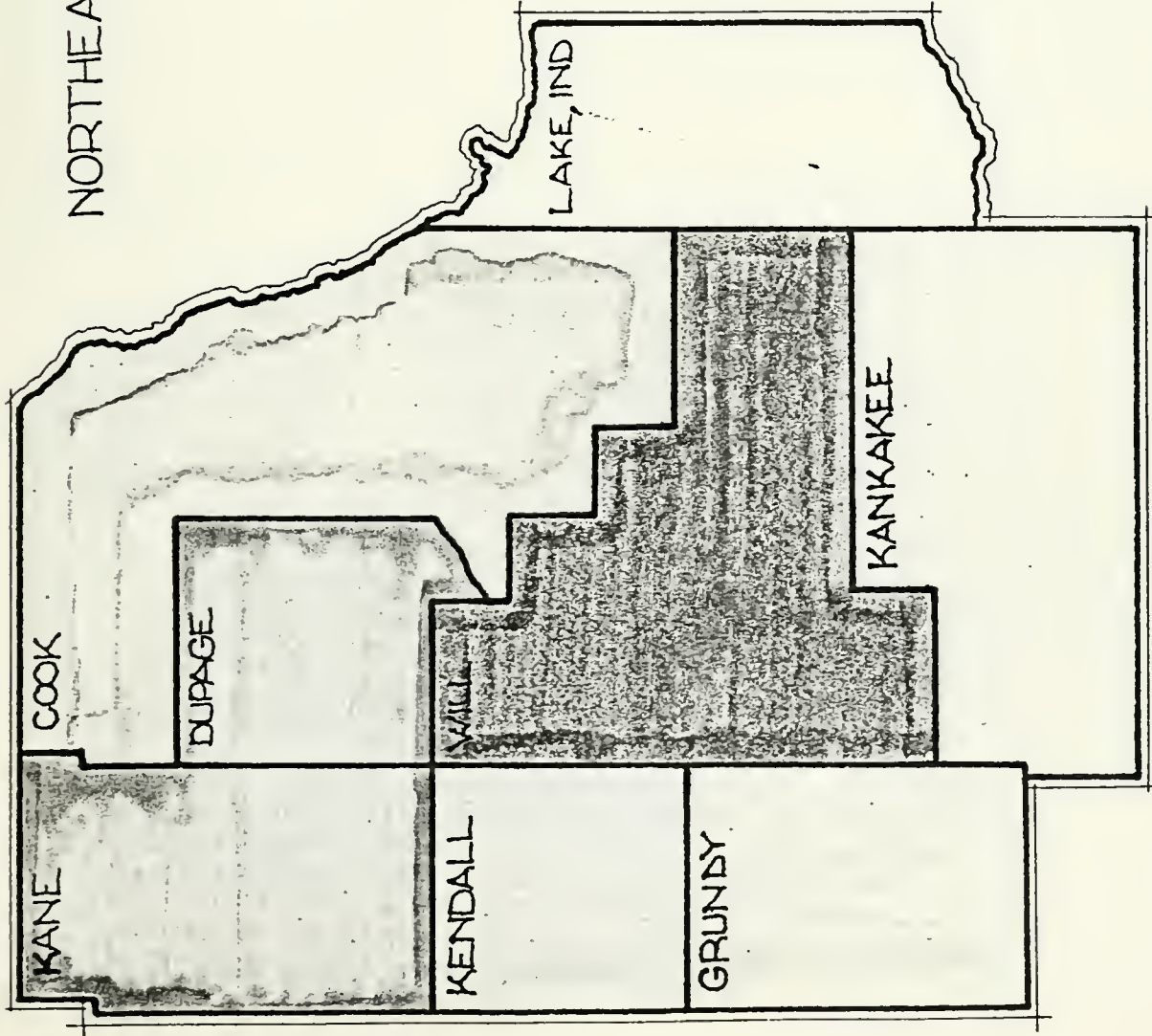
KANE 5.6%

KANKAKEE -.64%

KENDALL -.23%

WILL 11.7%

NORTHEASTERN ILLINOIS COUNTIES



Population % change 1975-1985

COOK 3.5%

DUPAGE 26.17%

GRUNDY 8.3%

KANE 27.27%

KANKAKEE 14.87%

KENDALL 14.7%

WILL 35.3%

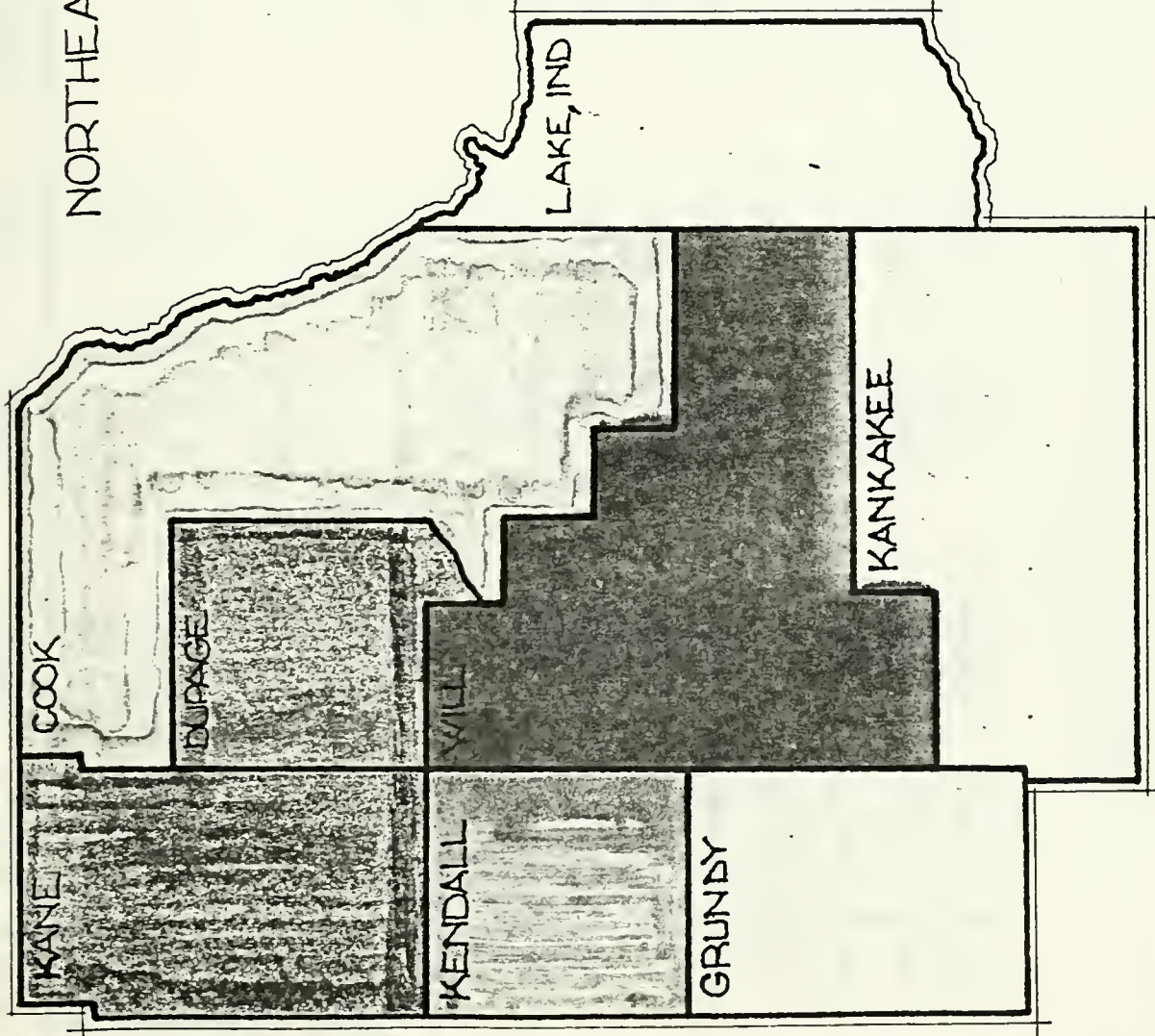
1944

1945

1946



NORTHEASTERN ILLINOIS COUNTIES



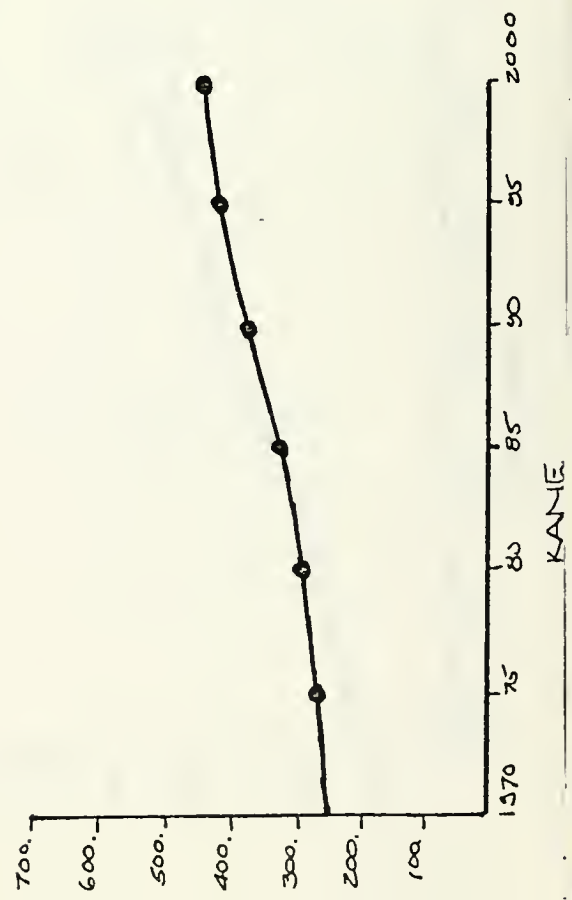
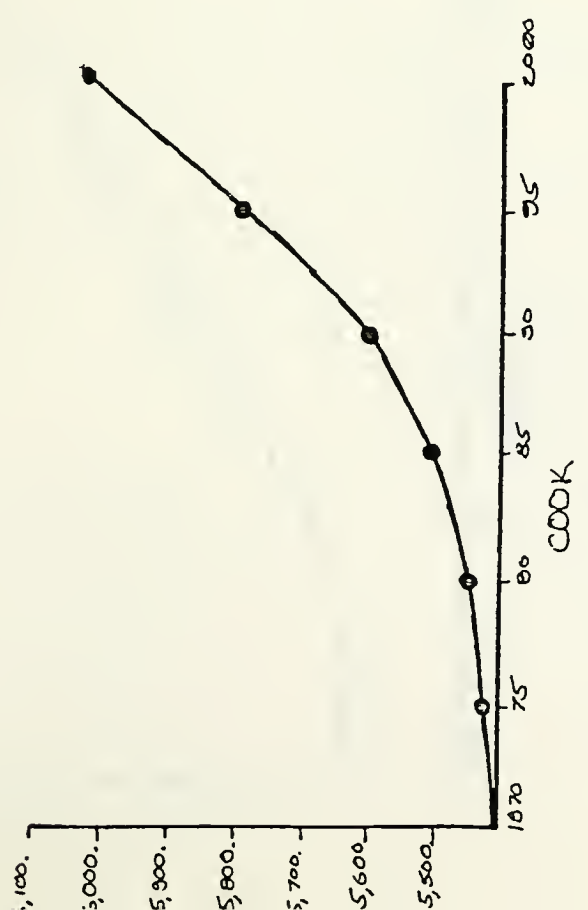
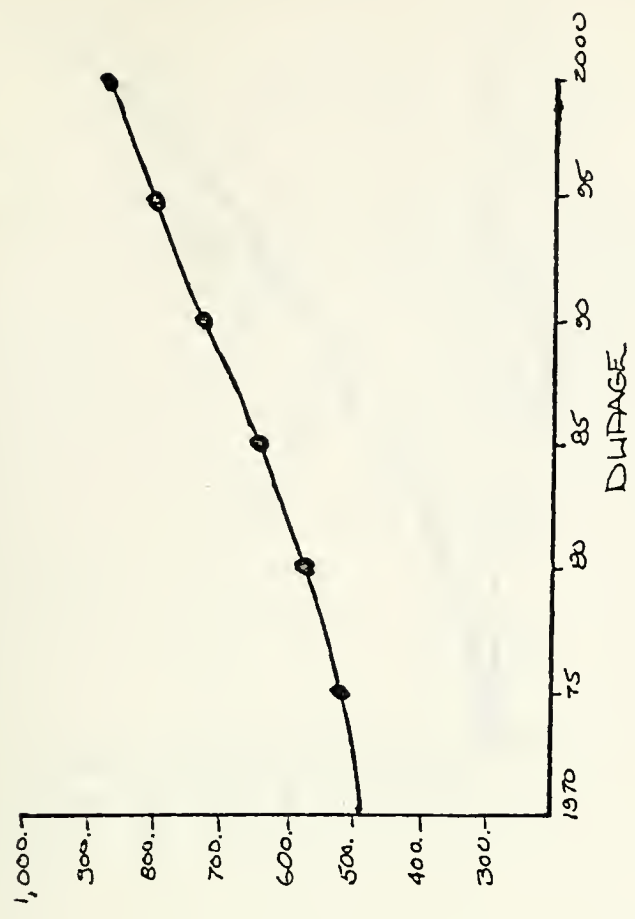
Population	% change	1985 - 2000
COOK	8.2%	
DUPAGE	36.3%	
GRUNDY	11.3%	
KANE	35.8%	
KANKAKEE	18.6%	
KENDALL	29.2%	
WILL	40.2%	

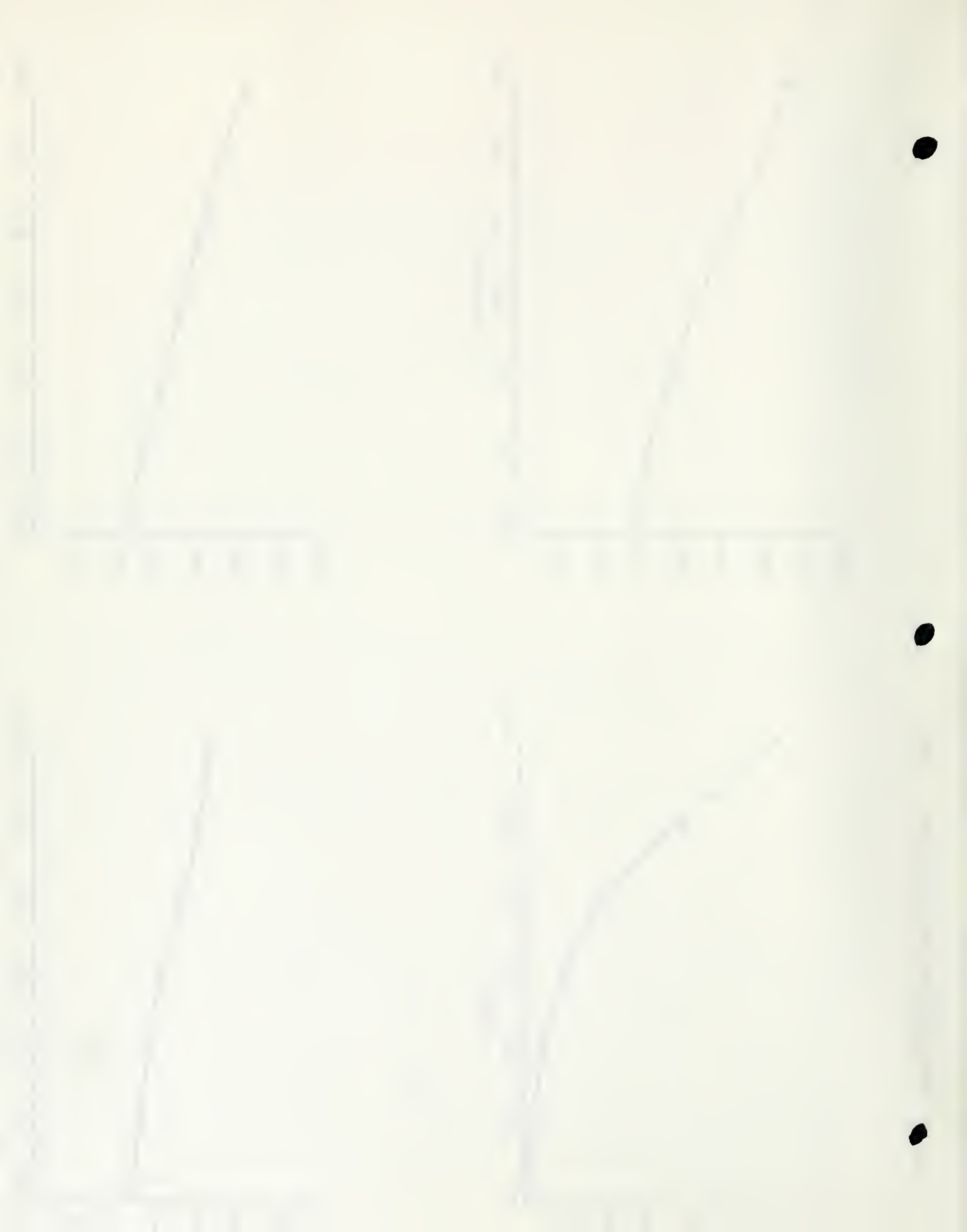
1924-1925
1926-1927



	COOK	DUPAGE	GRUNDY	KANE	KANKAKEE	KENDALL	WILL	LAKE, IND.
1950	4508792	154599		150388			134336	368152
1960	5086924	313664		207503			190432	514127
% change	12.8	102.9		38.0			41.8	39.6
1970	5504586	493292	26572	251005	97475	26424	250181	
% change	7.1	56.9	18.7	20.5	5.6	50.4	30.2	
1975	5368406	518558	26161	265771	96850	26363	279363	
76	5389359	530769	26380	271429	98130	26710	288242	
77	5401381	543389	26572	277222	99363	27044	298230	
78	5414740	557413	26784	283659	100732	27414	309328	
79	5429434	572838	27018	290739	102238	27821	321536	
1980	5445464	589666	27272	298463	103881	28266	334854	
85	5555402	654381	28345	338165	111151	30251	377915	
1990	5592728	734656	29223	379163	117764	32679	426547	
95	5792927	789369	30185	413734	123221	35174	469531	
2000	6012722	891746	31553	459086	131839	39101	529717	

COUNTY POPULATION PROJECTIONS (000)





COUNTY POPULATION PROJECTIONS (000)

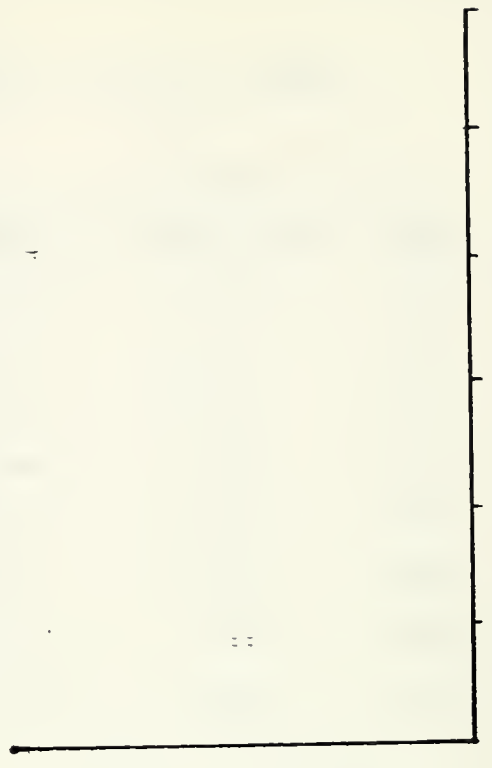
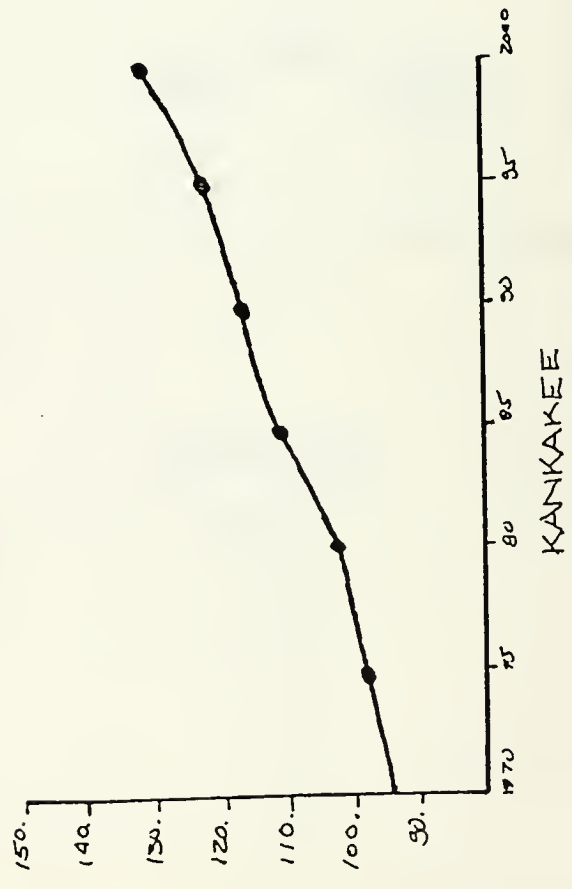
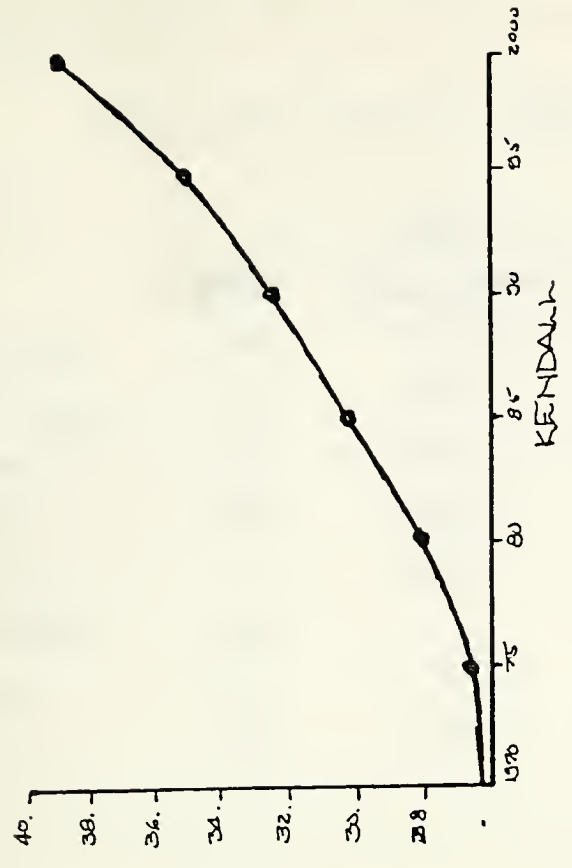
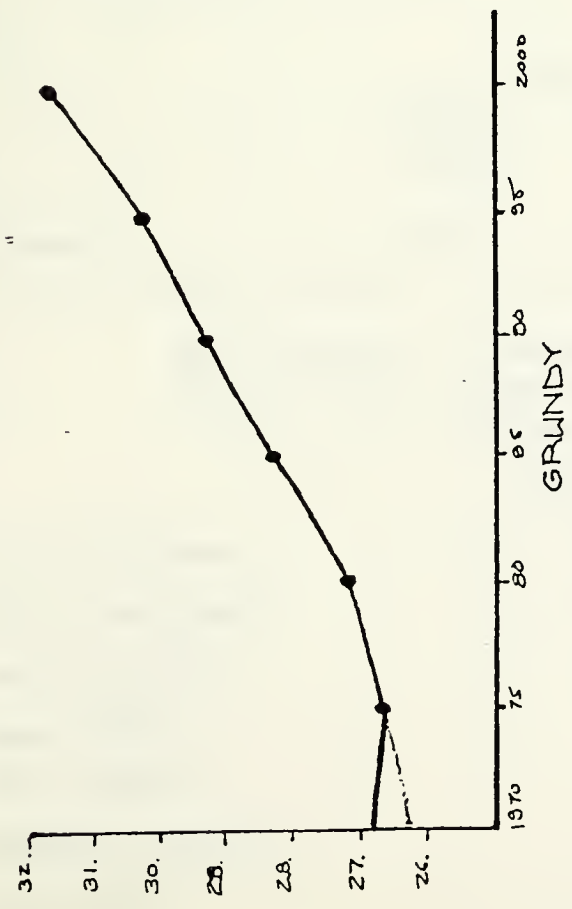


Table 1

Total Fertility Rates in Northeastern Illinois, 1970 and 2000

	1970			2000		
	<u>White</u>	<u>Other Races</u>	<u>Total</u>	<u>White</u>	<u>Other Races</u>	<u>Total</u>
City of Chicago	2.39	3.19	2.70	2.09	2.07	2.07
Sub. Cook County	2.36	3.46	2.42	1.97	2.00	1.97
DuPage County	2.45	2.81	2.46	2.04	2.07	2.04
Kane County	2.79	4.00	2.84	2.45	2.47	2.45
Lake County	2.74	3.42	2.78	2.37	2.39	2.38
McHenry County	2.66	-	2.66	2.29	2.31	2.29
Will County	2.56	3.91	2.65	2.24	2.25	2.24
Total	2.42	3.22	2.59	2.10	2.10	2.10

Table 2

Expectation of Life at Birth in Northeastern Illinois, 1970 and 2000

	1970		2000	
	<u>Male</u>	<u>Female</u>	<u>Male</u>	<u>Female</u>
White	68.6yrs.	75.6	71.6	77.5
Other Races	60.8	69.6	71.6	77.5

Table 3

Net Migration in Northeastern Illinois,
1960 to 1970, 1990 to 2000
(in thousands)

	<u>1960 - 1970</u>	<u>1990 - 2000</u>
City of Chicago	- 527.8	- 271.2
Sub. Cook County	318.9	59.8
DuPage County	126.4	41.1
Kane County	17.2	32.7
Lake County	37.1	36.7
McHenry County	16.5	9.8
Will County	29.4	28.1

Table 4 School Age Population in Northeastern Illinois, 1970 to 2000
(in thousands)

<u>County</u>	<u>Age</u>	<u>1970</u>	<u>1980</u>	<u>1990</u>	<u>2000</u>
Cook	5-14	1081	895	932	1011
	15-19	467	520	405	470
Chicago	5-14	624	507	523	520
	15-19	280	262	226	234
Suburban	5-14	457	388	409	491
	15-19	187	258	179	236
DuPage	5-14	117	102	117	160
	15-19	45	70	51	73
Kane	5-14	54	53	69	86
	15-19	23	33	32	43
Lake	5-14	83	78	100	123
	15-19	47	66	57	74
McHenry	5-14	25	24	30	44
	15-19	10	16	12	21
Will	5-14	57	61	74	95
	15-19	22	39	35	46
Total	5-14	1417	1213	1322	1519
	15-19	614	744	592	727

Table 5 Labor Force Age Population, 1970 to 2000
(in thousands)

County	Age	1970		1980		1990		2000	
		Male	Female	Male	Female	Male	Female	Male	Female
Cook	16-44	1022.5	1107.9	1225.5	1316.9	1318.4	1408.1	1342.0	1378.8
	45-64	570.5	630.3	534.3	604.6	512.1	572.1	629.6	719.1
Chicago	16-44	621.1	677.9	676.2	735.6	709.0	765.5	689.2	718.1
	45-64	348.5	398.2	274.1	326.8	242.3	282.2	301.7	346.4
Suburban	16-44	401.4	430.0	549.3	581.3	609.4	642.6	652.8	660.7
	45-64	222.0	232.1	260.2	277.8	269.8	269.9	327.9	372.7
DuPage	16-44	96.6	101.3	144.0	153.5	175.1	189.4	193.5	203.5
	45-64	46.2	46.5	60.7	61.7	77.2	84.5	100.0	121.9
Kane*	16-44	47.1	49.0	69.1	71.0	92.0	96.2	105.2	107.7
	45-64	21.9	23.6	25.6	27.8	32.9	36.3	42.1	52.1
Lake *	16-44	67.4	71.6	104.2	110.3	133.1	142.4	147.4	154.7
	45-64	33.6	34.2	44.6	46.5	54.9	60.8	68.1	81.6
McHenry	16-44	20.0	21.0	33.4	34.8	41.6	44.5	52.5	55.6
	45-64	11.0	11.4	13.1	14.1	17.2	18.4	26.4	30.4
Will*	16-44	46.4	48.6	78.4	81.7	102.0	107.5	119.6	123.5
	45-64	22.6	22.5	31.2	31.6	40.6	42.6	54.5	62.3
Total	16-44	1300.0	1399.4	1654.6	1768.2	1862.2	1988.1	1960.2	2023.8
	45-64	705.8	768.5	709.5	786.3	734.9	814.7	920.7	1067.4

Table 6 Population Aged 65 and Over in Northeastern Illinois, 1970 to 2000
(in thousands)

<u>County</u>	<u>1970</u>	<u>1980</u>	<u>1990</u>	<u>2000</u>
Cook	514	561	621	625
Chicago	355	350	361	342
Suburban	159	211	260	283
DuPage	28	38	57	75
Kane	22	26	30	31
Lake	24	33	45	52
McHenry	10	12	14	15
Will	18	25	33	38
Total	616	695	800	836

Table 7 Minority Races as a Percent of Population
 in Northeastern Illinois, 1970 to 2000

<u>County</u>	<u>1970</u>	<u>1980</u>	<u>1990</u>	<u>2000</u>
Cook	28.8%	28.0	32.1	34.0
Chicago	34.4	44.8	51.7	54.9
Suburban	4.3	6.4	9.1	11.8
DuPage	0.8	1.8	4.4	9.5
Kane	4.0	6.8	12.7	20.9
Lake	5.9	8.0	12.4	18.7
McHenry	0.3	0.6	2.6	8.0
Will	7.2	9.0	13.9	21.1
Total	18.7	22.6	25.7	28.3



TABLE I.

COMPONENTS OF POPULATION CHANGE

	Total Population 1970	Total Population 1960	Percent Change	1960-1970			Net Migration ¹	
				Birth	Natural Increase Death	Increase	Number	Percent ¹
City of Chicago	3,366,957	3,550,409	-5.2	776,005	426,780	349,225	-532,672	-15.0
Suburban Cook County	2,125,512	1,579,321	34.6	365,948	134,005	231,943	314,153	19.9
DuPage County	491,882	313,459	56.9	75,031	23,073	51,958	126,465	40.3
Kane County	251,005	208,246	20.5	49,337	19,831	29,506	13,253	6.4
Lake County	382,638	293,656	30.3	68,191	22,632	45,559	43,423	14.8
McHenry County	111,555	84,210	32.5	19,751	8,725	11,026	16,319	19.4
Will County	249,498	191,617	30.2	46,339	17,416	28,923	28,958	15.1
Suburban Northeastern Illinois	3,611,990	2,670,509	35.3	624,594	225,684	398,910	542,571	20.3
Total Northeastern Ill.	6,978,947	6,220,913	12.2	1,400,602	652,462	748,140	9,899	0.2

¹ Defined as number of Natural Increase or Net Migration/1960 total population X 100.

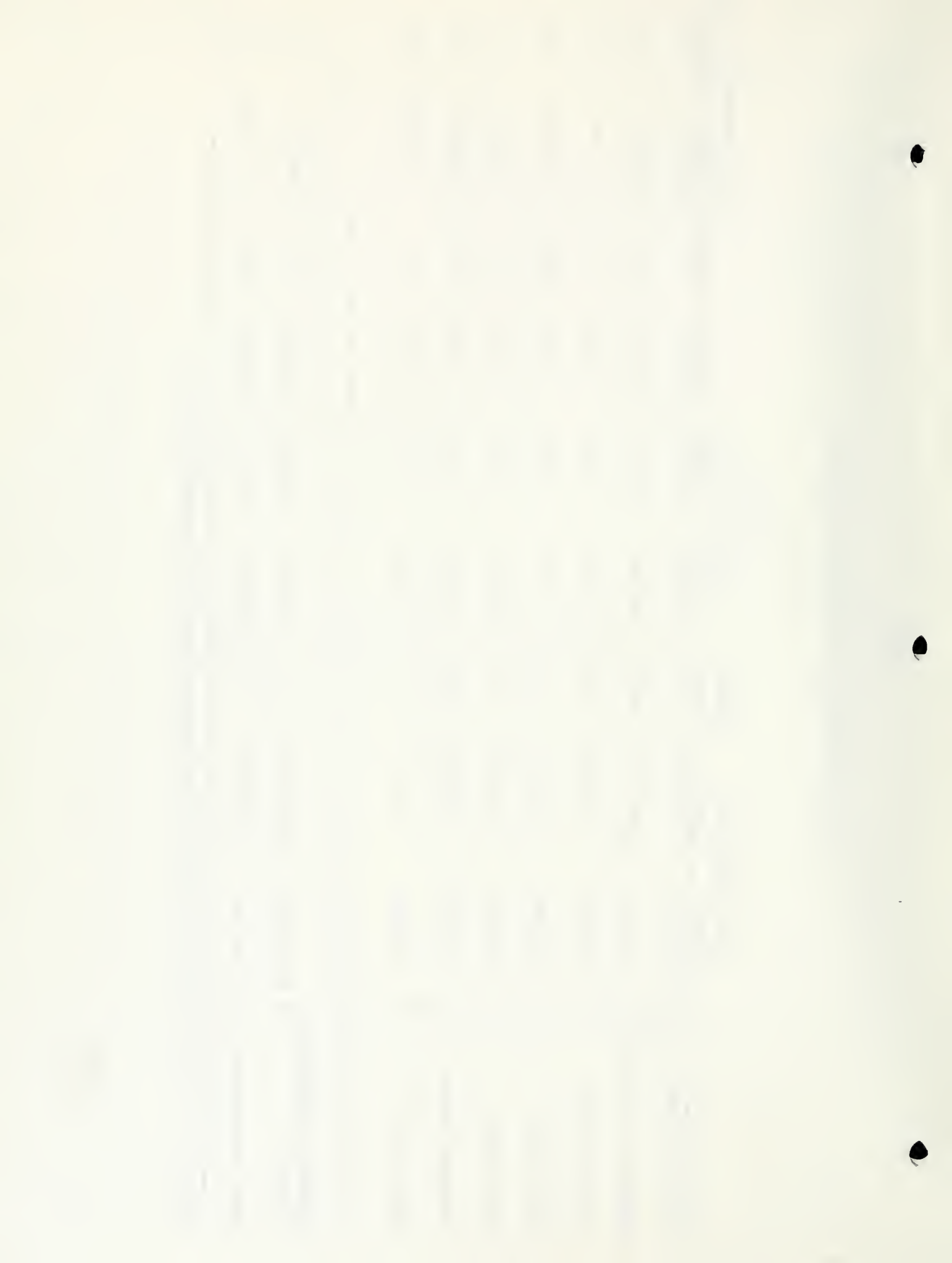


TABLE 2

COMPONENTS OF POPULATION CHANGE FOR THE NEGRO

AND OTHER RACES 1960 - 1970

COUNTY ¹	1970		1960	Percent Change	Natural Increase		Increase	Percent ²		Net Migration	
					Births	Deaths				Number	Percent
City of Chicago	1,159,190	837,656		38.4	303,859	95,519	208,340	24.9		113,194	13.5
Suburban Cook County	92,283	51,196		80.3	19,480	5,281	14,199	27.5		26,888	52.5
Kane County ¹	9,971	5,006		99.2	2,090	510	1,580	31.6		3,385	67.6
Lake County	22,555	12,695		77.7	5,466	1,005	4,461	35.1		5,399	42.5
Will	18,029	12,154		48.3	4,221	870	3,351	27.6		2,524	20.8
Suburban Northeastern Illinois ¹	142,838	81,051		76.2	31,257	7,666	23,591	29.1		38,196	47.1
Total Northeastern Illinois	1,302,028	918,713		41.7	335,116	103,185	231,931	25.2		151,390	16.5

¹ Race Data for DuPage, Kane and McHenry Counties is considered statistically insignificant and is not reported by the U.S. Bureau of the Census. Kane County estimates were developed by NIPC and included in the total. The population of the Negro and other races in DuPage and McHenry Counties was 4,349 in 1970.

² Defined as number of natural increase or net migration/1960 total population X 100.



TABLE 3: Commuting Patterns 1960-1970

AREA	Number and Percent of Resident Workers Employed Outside the Area of Residence				Number and Percent of Workers in an Area Com- muting in from elsewhere in Northeastern Ill.			
	1960		1970		1960		1970	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Chicago	100,300	7.4	224,100	18.4	328,400	20.8	355,100	26.3
Suburban Cook	281,000	48.8	345,200	42.4	124,200	30.6	277,300	37.2
DuPage County	63,700	58.4	95,300	50.7	12,500	21.6	40,100	30.2
Kane County	12,000	15.2	25,700	25.9	6,600	8.9	15,500	17.4
Lake County	24,800	22.2	41,800	26.9	7,200	7.6	23,000	16.8
McHenry County	8,400	28.0	15,600	37.0	1,400	6.2	2,800	9.5
Will County	14,900	23.4	26,700	30.6	2,200	4.3	5,400	8.2

Sources:

1970 Census of Population and Housing -- PHC (1)-43 Table P-2
1960 Census of Population and Housing -- PHC (1)-26 Table P-3

The 1970 total employment data was collected for the month of March so that valid correlations and comparison with census and land use data could be made. In order to facilitate the use of the data by planners from different organizations it has been placed in the Illinois Regional Information System (IRIS), whence it can be retrieved through a network of telephone lines and terminals. Used in conjunction with other data files in IRIS, such as population, socio-economic characteristics, land use and natural resource data, the employment data can be used to facilitate decisions on future development. The data is also kept in printout form in the NIPC Data Center.

III. CHANGES IN COMMUTING PATTERNS

The changes in spatial distribution of employment are among the forces reflected in changing commuting patterns. Appendix Table A-2 shows place of work by place of residence in northeastern Illinois, as derived from the 1960 and 1970 censuses of population. Appendix Table A-3 shows the same data as percentages of all employed persons living in the region. Both tables are subject to the limitations shown in section IV.


In 1960, more than half the workers in the region both lived and worked in Chicago. By 1970, this had declined to 35.3%. Numerically, the decline was 255,400. This is partially due, of course, to the city's decline in population. However, it should be noted that the number of persons living in Chicago and working elsewhere more than doubled during the period 1960-1970 from 100,300 to 224,100. The number of workers living in suburban northeastern Illinois and working in Chicago increased by 8.2%, or 26,700 workers, during this decade.

All suburban counties and the City of Chicago experienced an increase in the number of people who commuted from elsewhere in northeastern Illinois. Suburban Cook County experienced the greatest numerical increase of in-commuters, an increase of 153,200 in-commuters during the 1960's. Lake County experienced the greatest percent increase of in-commuters, an increase of 219 percent during the decade. The City of Chicago and all counties except suburban Cook and DuPage experienced increases in the proportions of resident workers working elsewhere in northeastern Illinois.

These findings indicate that commuting between the major parts of northeastern Illinois (City of Chicago and suburban counties) has increased during the 1960's. This phenomenon has occurred even though employment decentralized during the decade. Table 3 summarizes these findings.

WILL COUNTY TOWNSHIPS

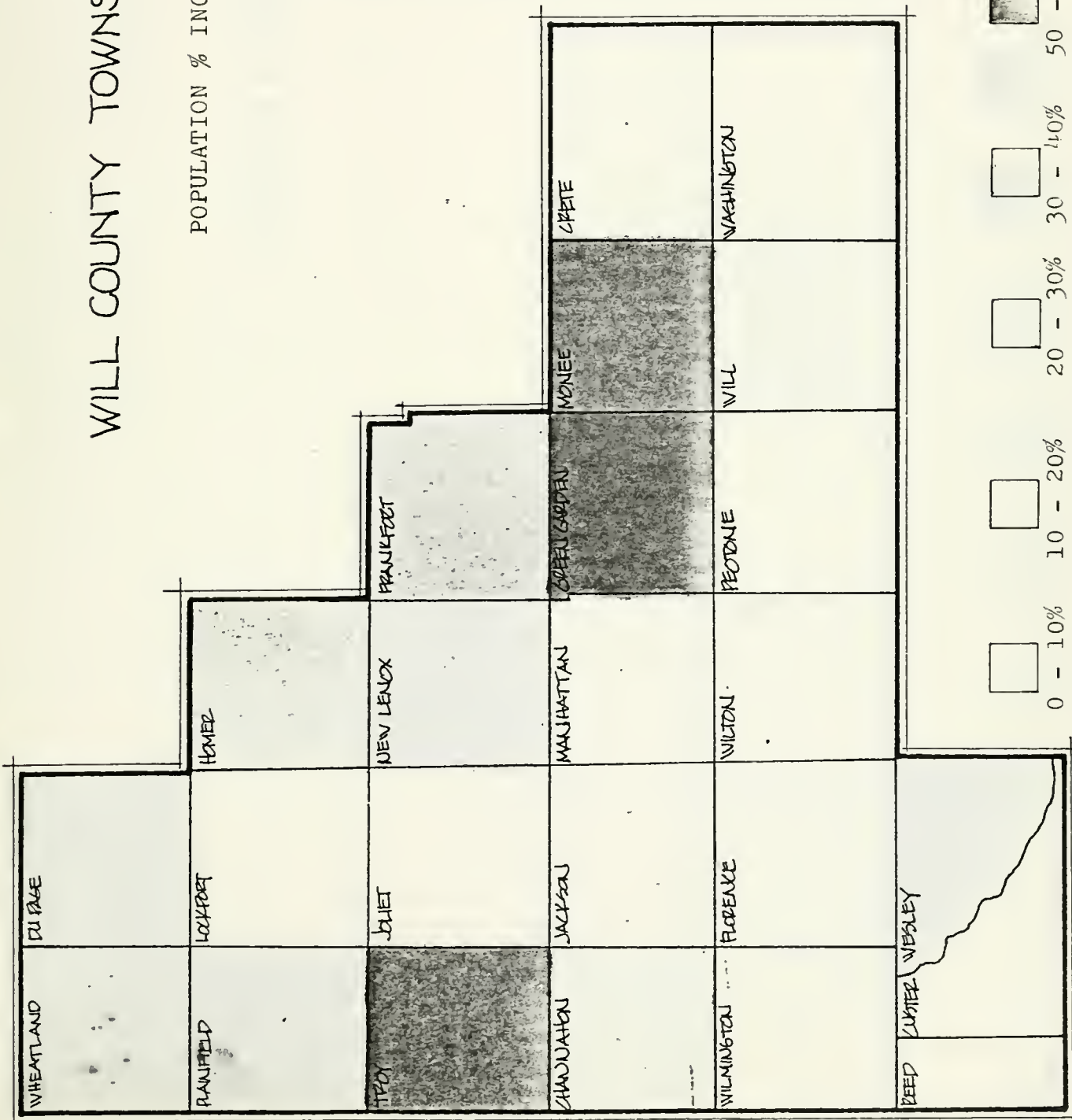
WILL COUNTY TOWNS

WHEATLAND	DUPAGE						
PLAINFIELD	LOCKPORT	HOMER					
TROY	JOLIET	NEW LENOX	FRANKFORD				
CHANNATION	JACKSON	MANHATTAN	GREEN GARDEN	MONROE			
WILMINGTON	FLORENCE	WILTON	PEDOTONE	WILL	WASHINGTON		
LEEDS	CHSTER	WESLEY					



WILL COUNTY TOWNSHIPS

POPULATION % INCREASE 1970 - 1975



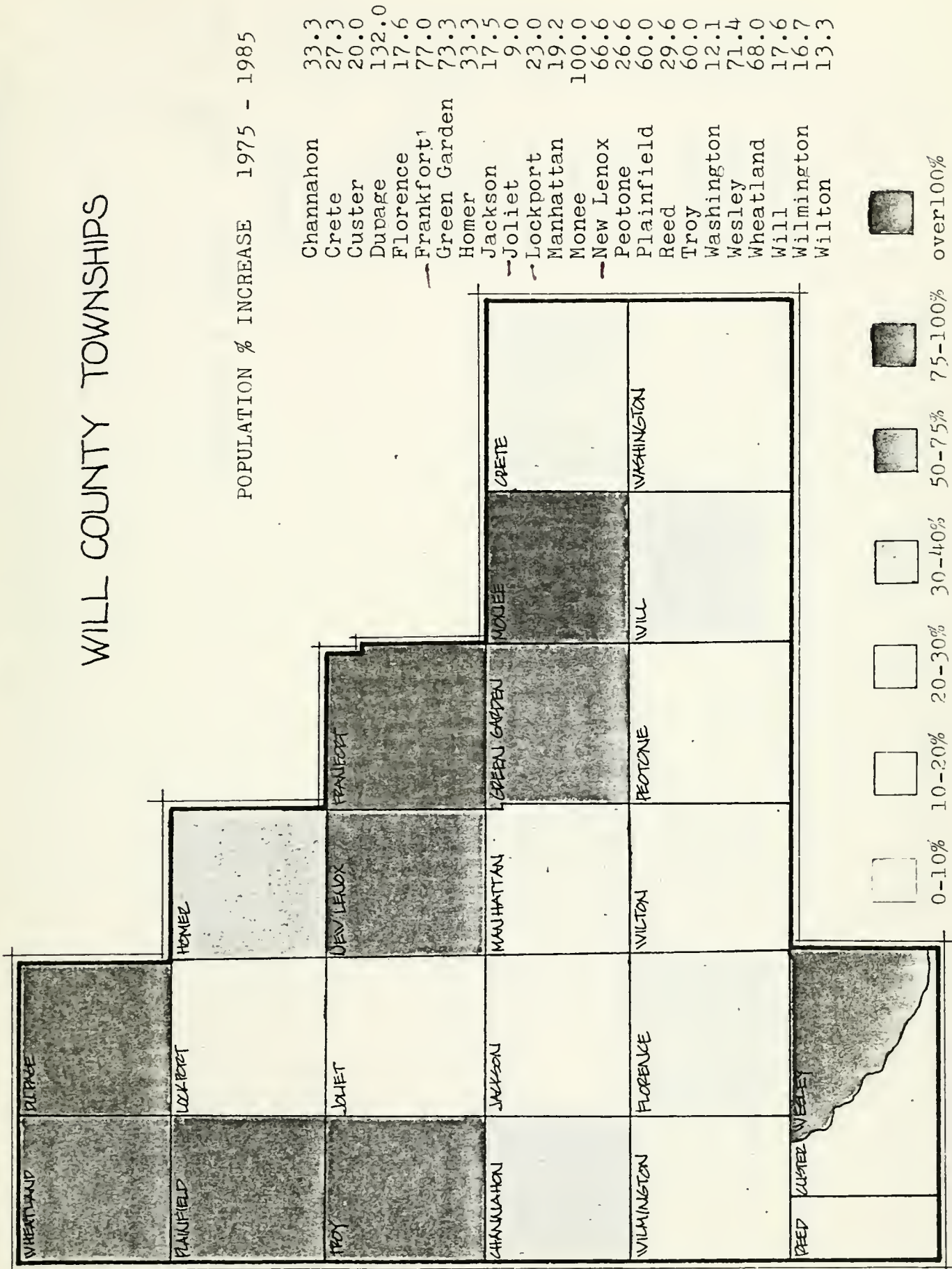
Channahon	12.3
Crete	6.8
Custer	5.4
Dupage	24.8
Florence	1.9
Frankfort	35.0
Green Garden	87.3
Homer	34.7
Jackson	14.7
Joliet	4.6
Lockport	8.7
Manhattan	9.6
Monroe	179.4
New Lenox	20.2
Peotone	2.5
Plainfield	14.0
Reed	2.0
Washington	12.3
Wesley	9.4
Wheatland	29.6
Will	17.7
Wilmington	13.3
Wilton	3.2





WILL COUNTY TOWNSHIPS

POPULATION % INCREASE 1975 - 1985

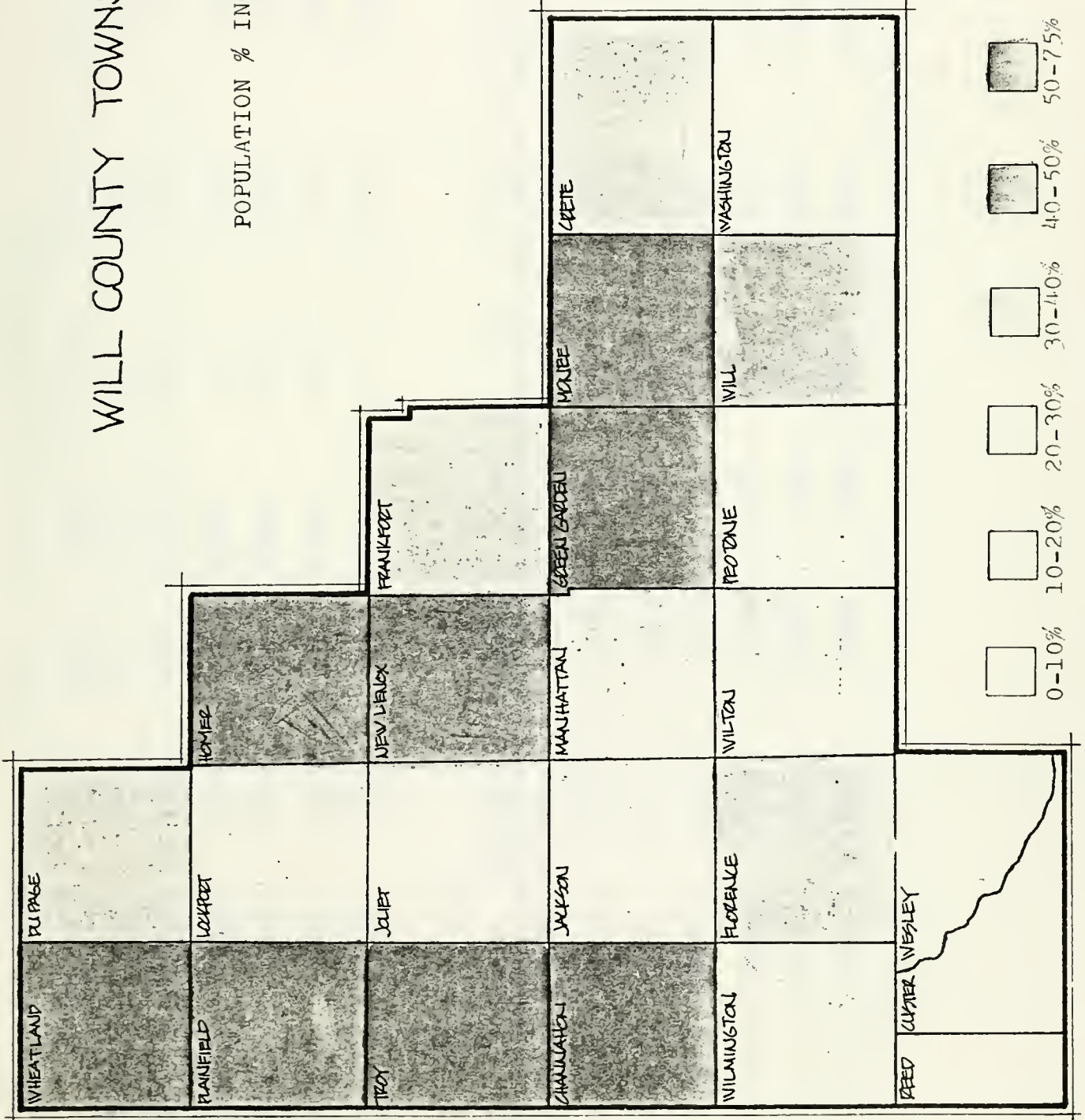


0-10% 10-20% 20-30% 30-40% 50-75% 75-100% over 100%

WILL COUNTY TOWNSHIPS

POPULATION % INCREASE 1985 - 2000

Channahon	45.0
Crete	38.1
Custer	25.0
Dupage	32.8
Florence	37.5
Frankfort	39.1
Green Garden	54.0
Homer	39.1
Jackson	23.4
Joliet	7.8
Lockport	24.0
Manhattan	25.8
Monee	54.7
New Lenox	51.2
Peotone	23.7
Plainfield	46.5
Reed	20.0
Troy	52.0
Washington	13.5
Wesley	20.0
Wheatland	52.4
Will	33.3
Wilmington	22.9
Wilton	29.4



WILL COUNTY TOWNSHIP POPULATIONS AND PROJECTIONS

	Channahon	Crete	Custer	DuPage	Florence	Frankfort	Green Garden	Homer	Jackson
1970	2672	15448	949	20033	667	--9633	801	6683	1744
1975	3000	16500	1000	25000	680	13000	1500	9000	2000
1980	3700	19900	1100	50200	700	15300	2000	9300	2100
1985	4000	21000	1200	58000	800	23000	2600	12000	2350
1990	4800	25000	1300	65600	900	25000	3000	14100	2500
2000	5800	29000	1500	77000	1100	--32000	4000	19900	2900

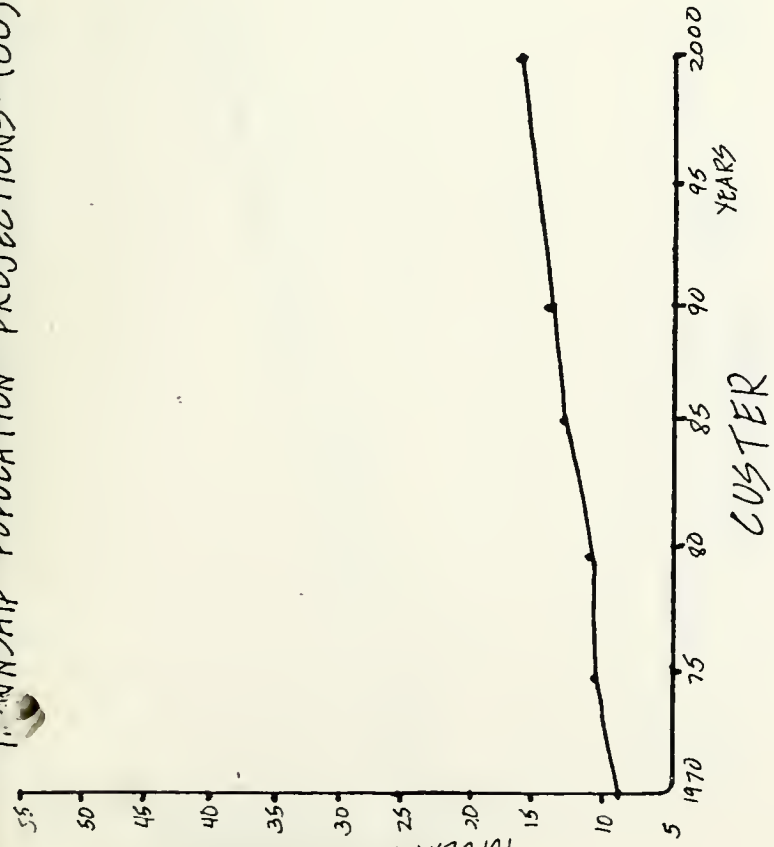
	Joliet	Lockport	Manhattan	Monee	New Lenox	Peotone	Plainfield	Reed	Troy
1970	195643	33669	2372	7158	--9982	2925	10961	2646	9812
1975	100000	36000	2600	20000	12000	3000	12500	2700	15000
1980	105000	40000	2800	25800	16000	3500	17000	3300	17500
1985	109000	45000	3100	40000	20000	3800	20000	3500	24000
1990	112000	48000	3400	45000	29000	4100	24000	3700	26000
1995	115000	51000	3650	53000	34000	4300	26000	3900	31000
2000	117500	55800	3900	61900	--40500	4700	29300	4200	36500

WILL COUNTY TOWNSHIP POPULATIONS AND PROJECTIONS

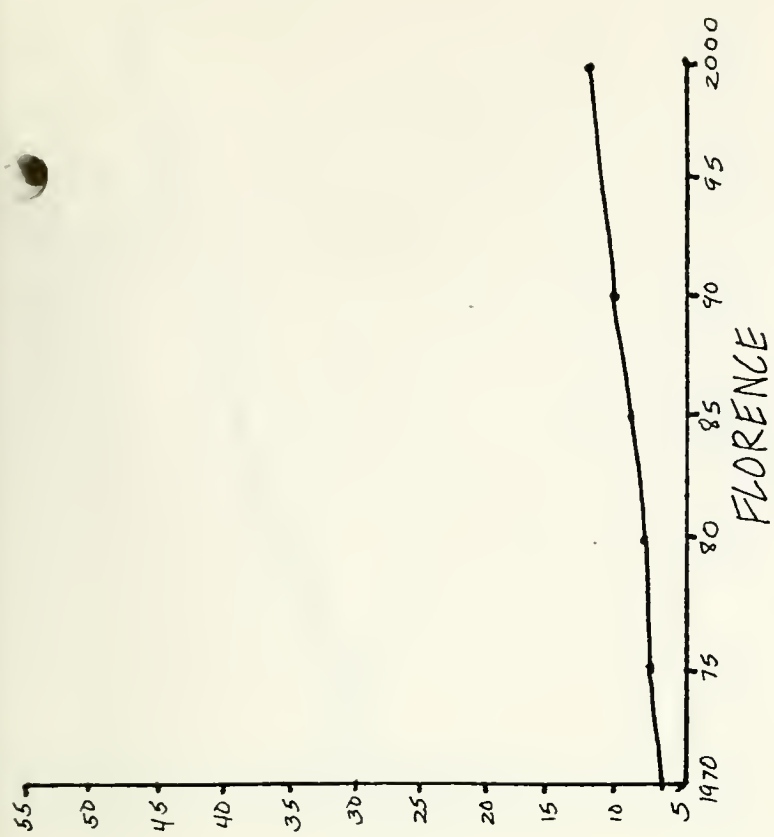
	Washington	Wesley	Wheatland	Will	Wilmington	Wilton
1970	2939	1600	1929	722	5296	727
1975	3300	1750	2500	850	6000	750
1980	3500	2700	3000	900	6300	800
1985	3700	3000	4200	1000	7000	850
1990	3800	3200	4600	1100	7600	900
2000	4200	3600	6100	1300	8600	1100

TOWNSHIP POPULATION PROJECTIONS - (00)

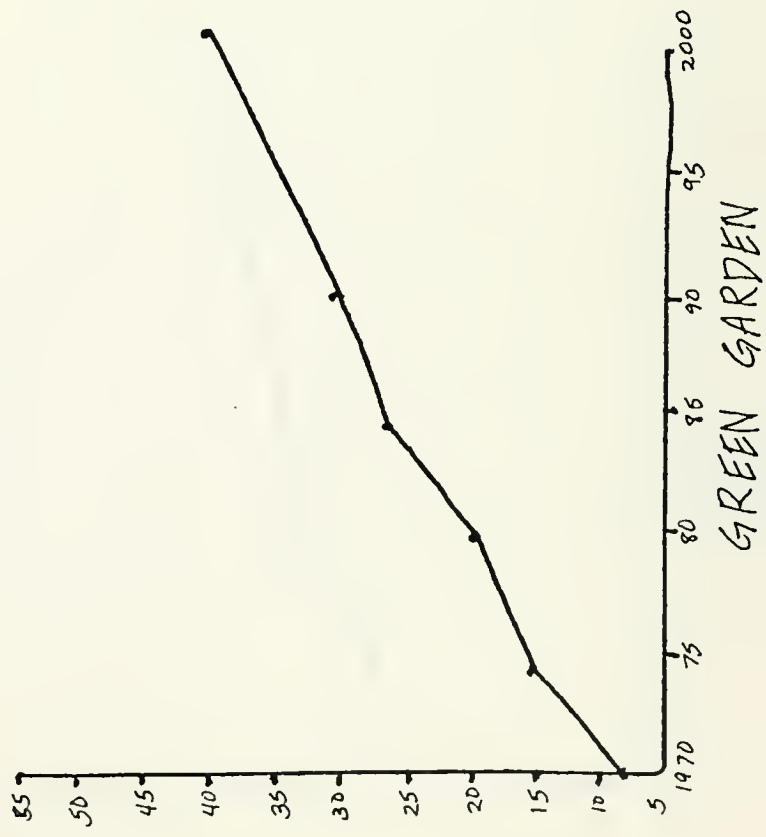
POPULATION IN HUNDREDS



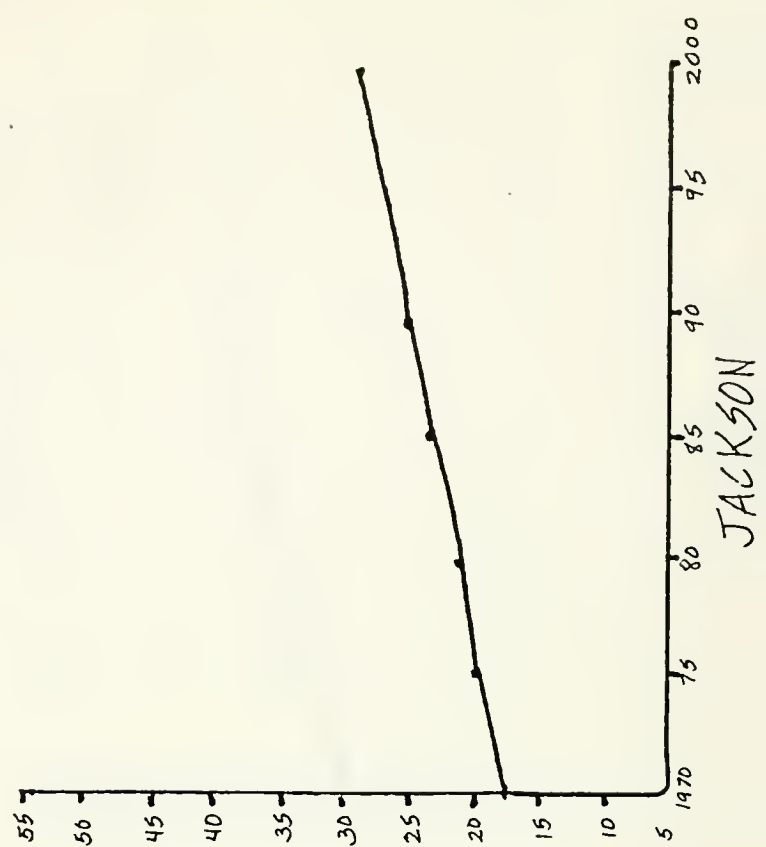
CUSTER



FLORENCE

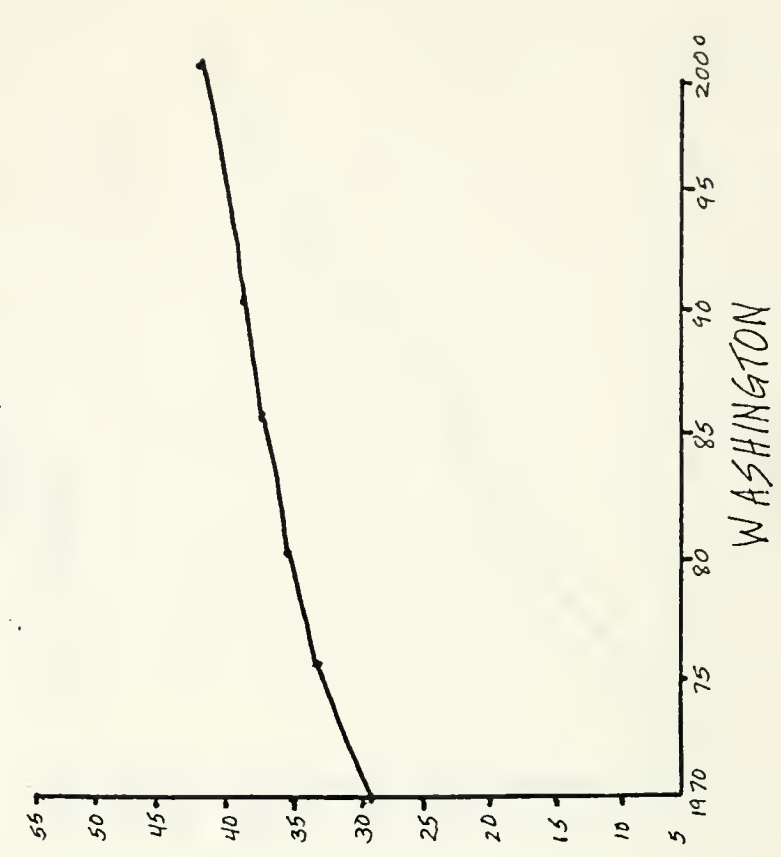
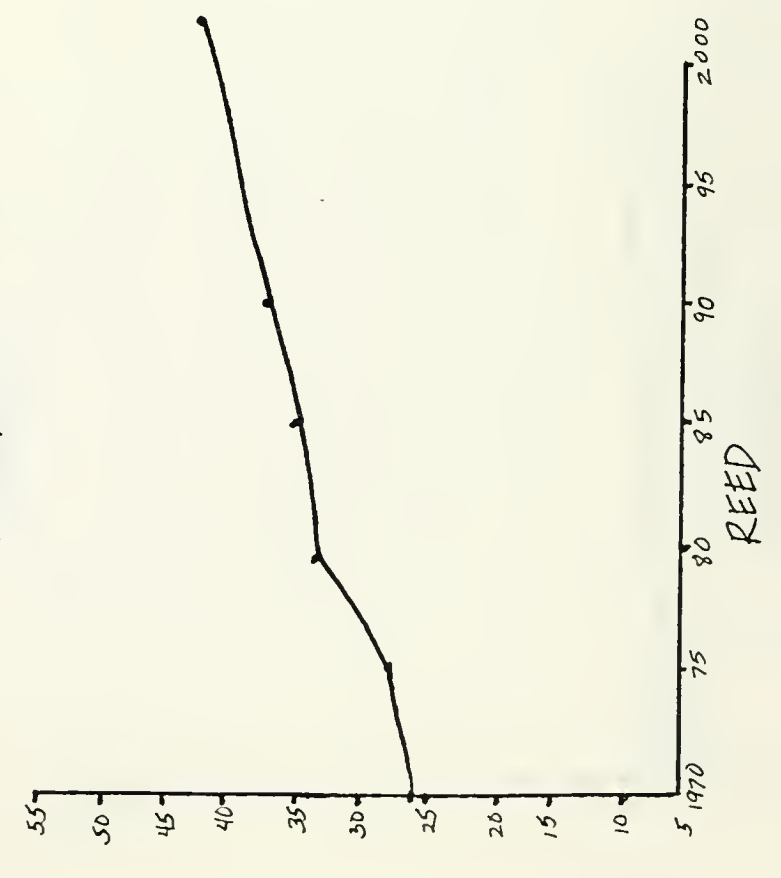
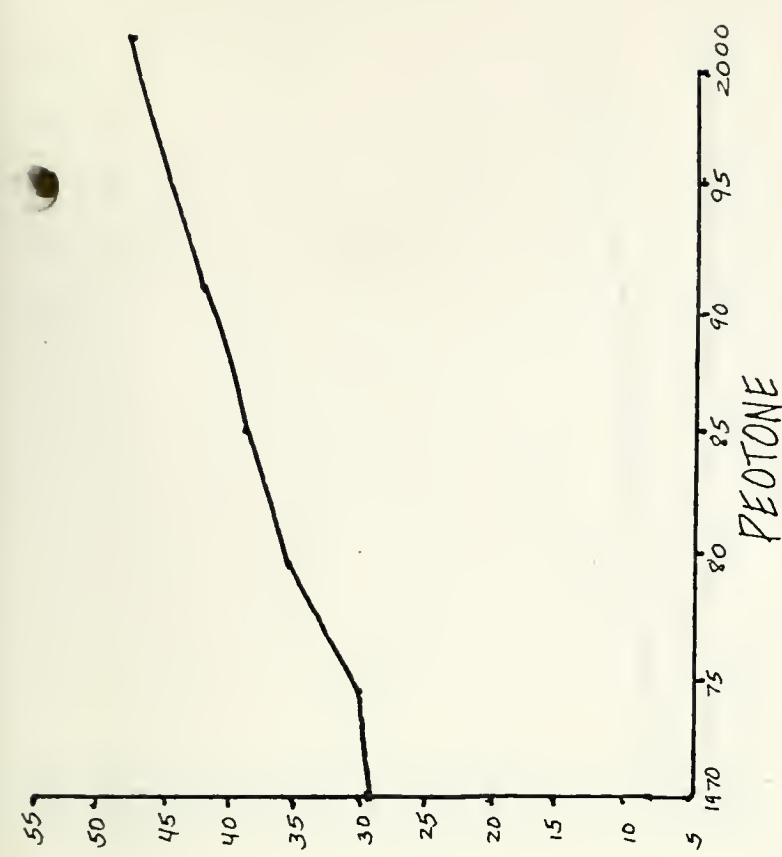
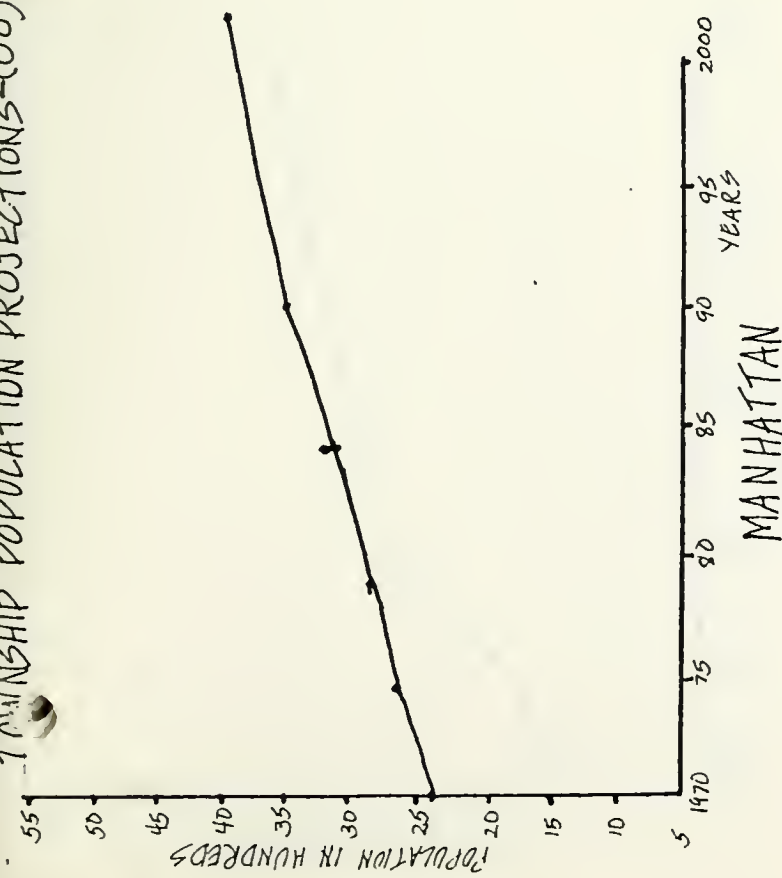


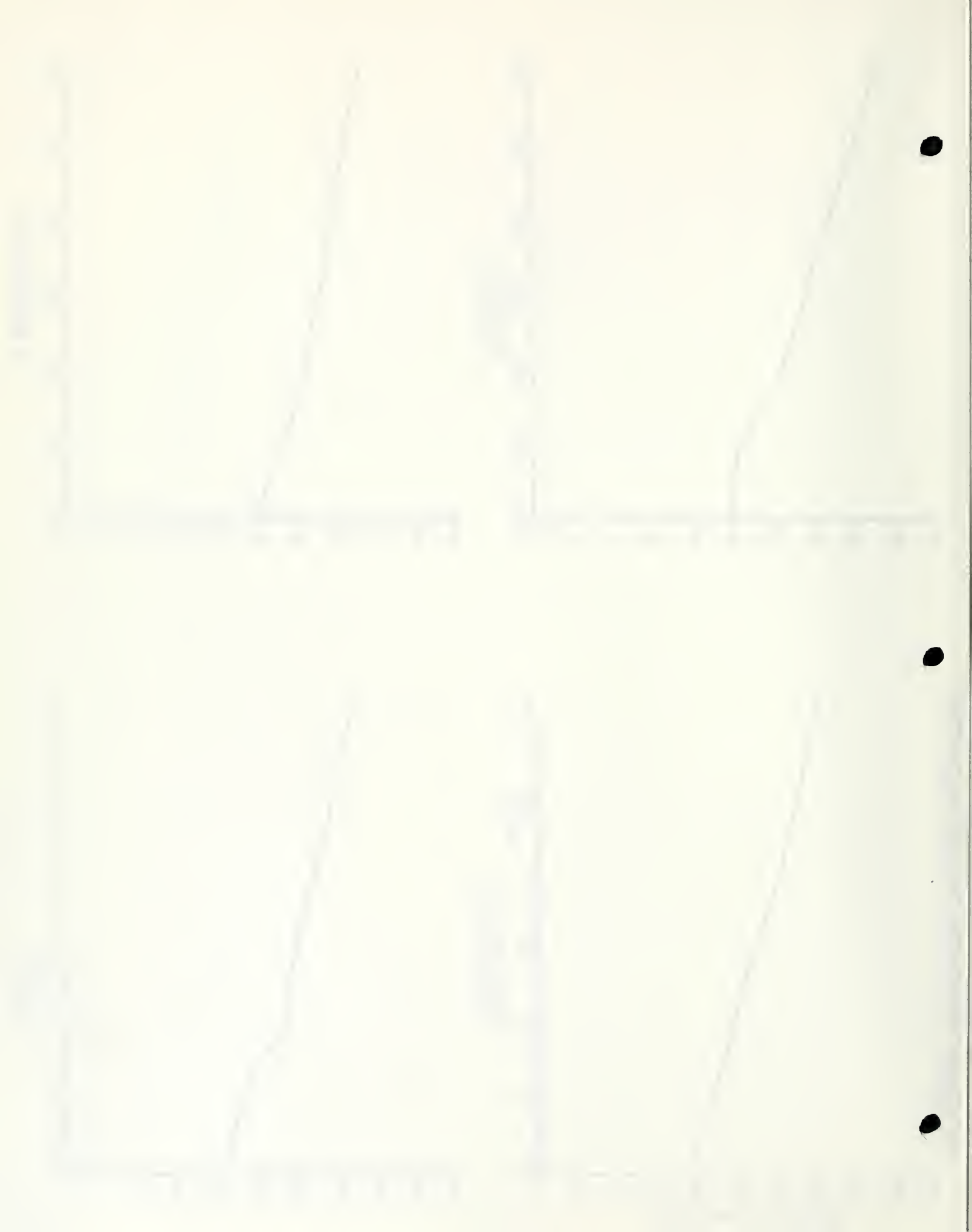
GREEN GARDEN



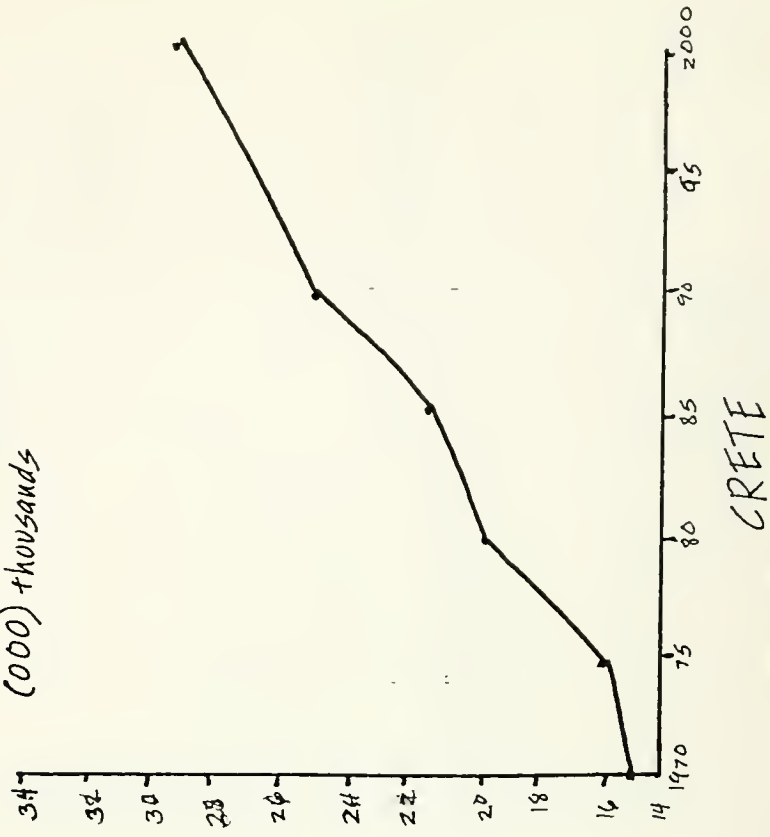
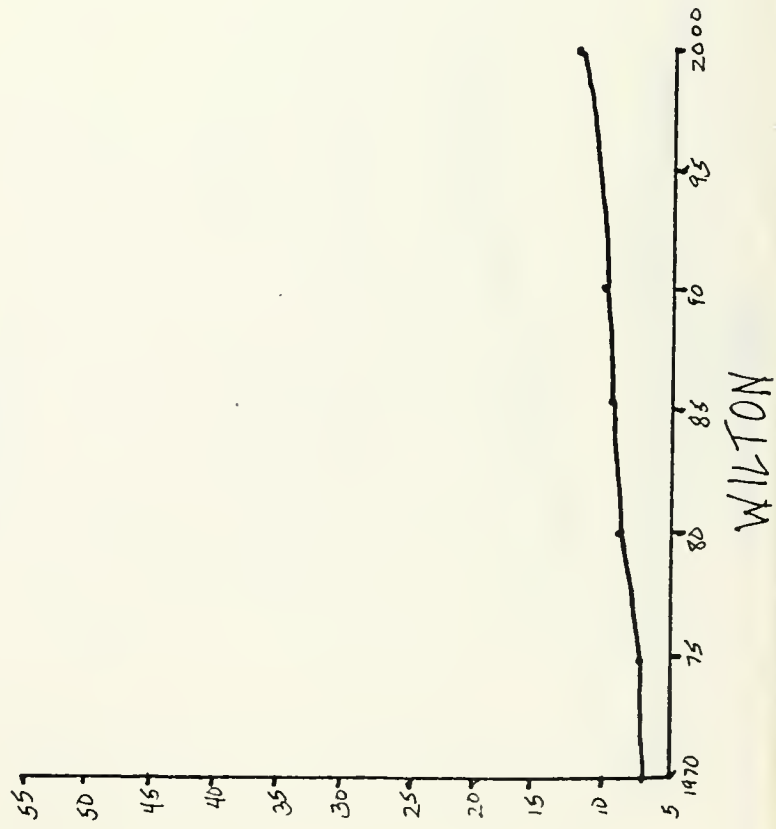
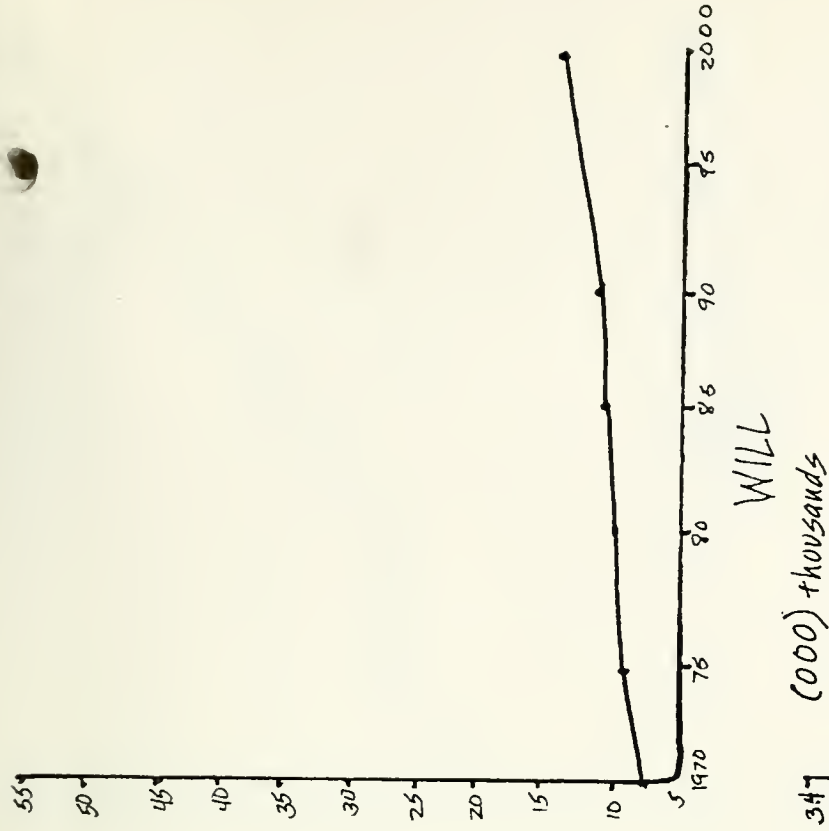
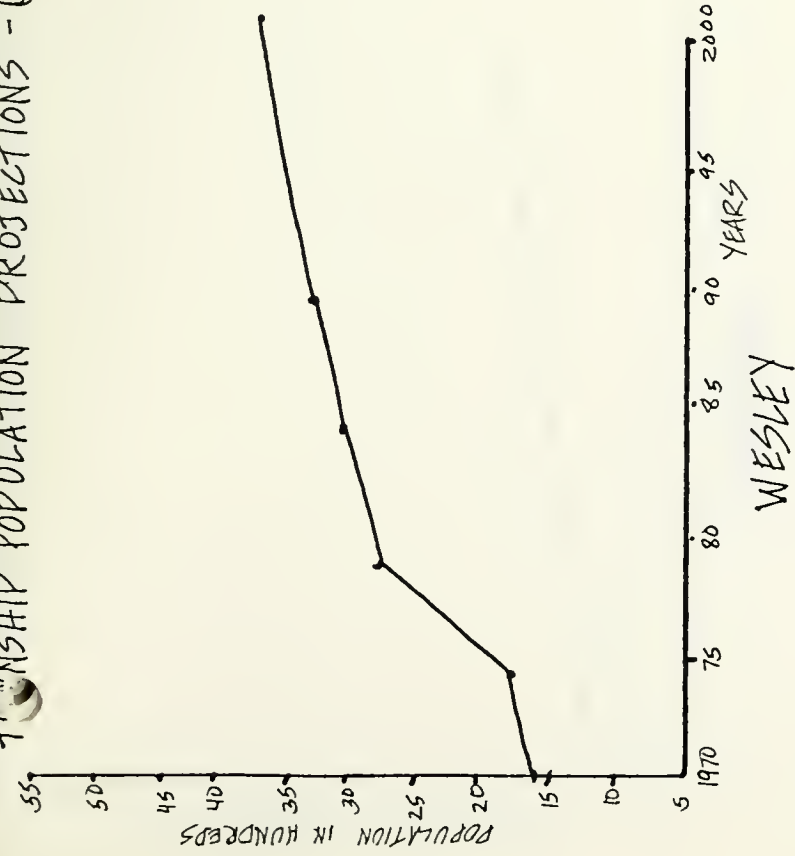
JACKSON

TOWNSHIP POPULATION PROJECTIONS-(000)

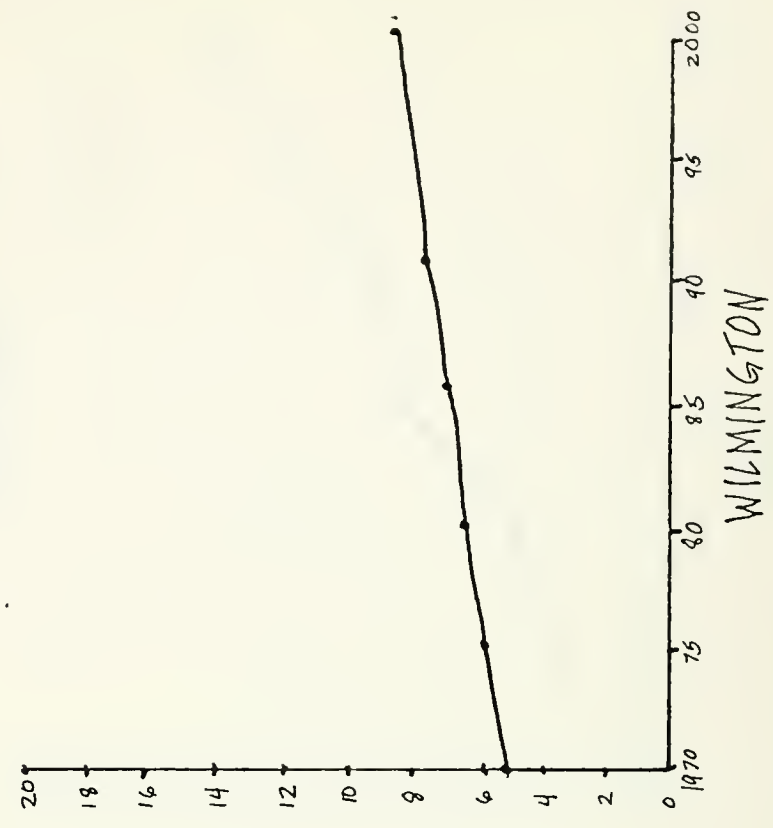
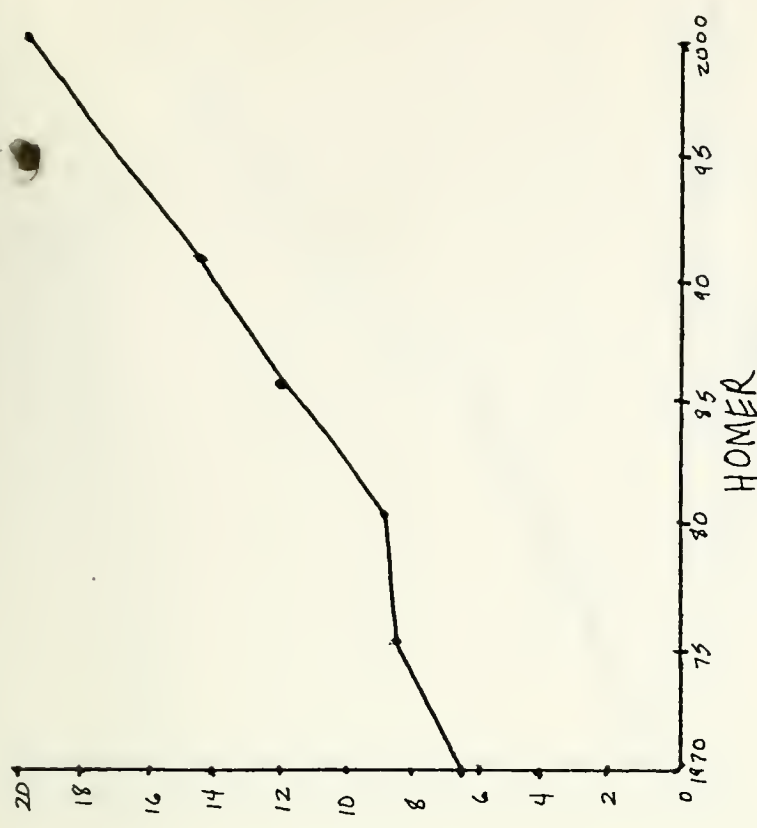
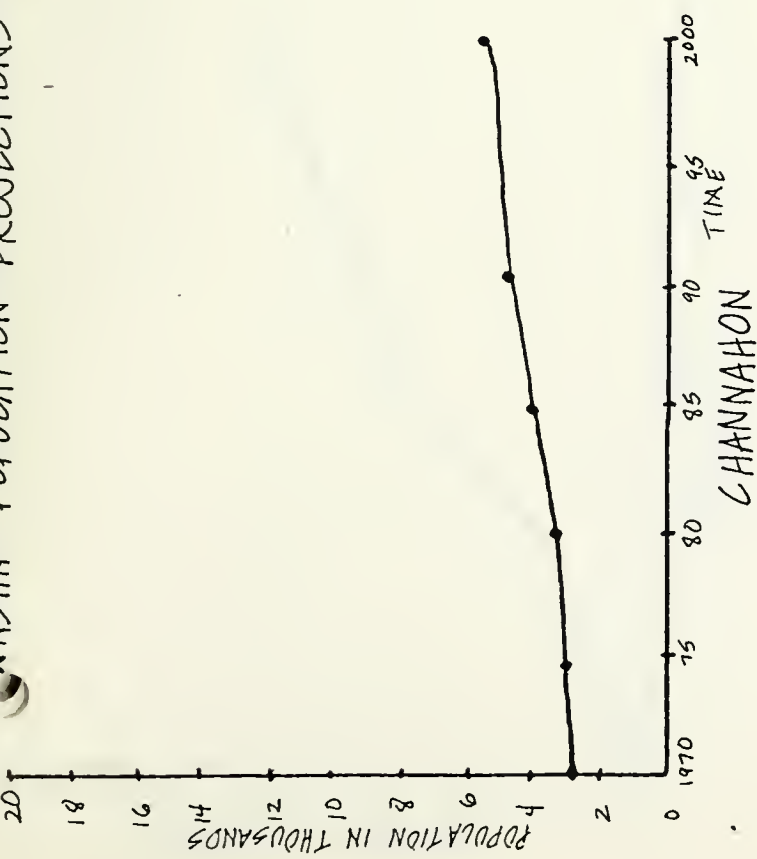




TOWNSHIP POPULATION PROJECTIONS - (000's)

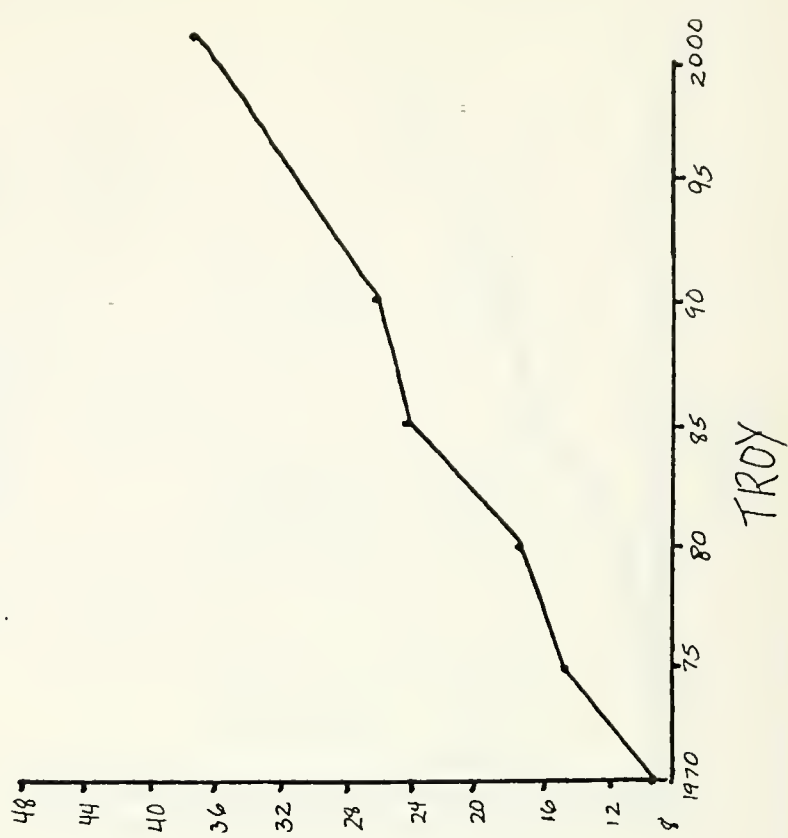
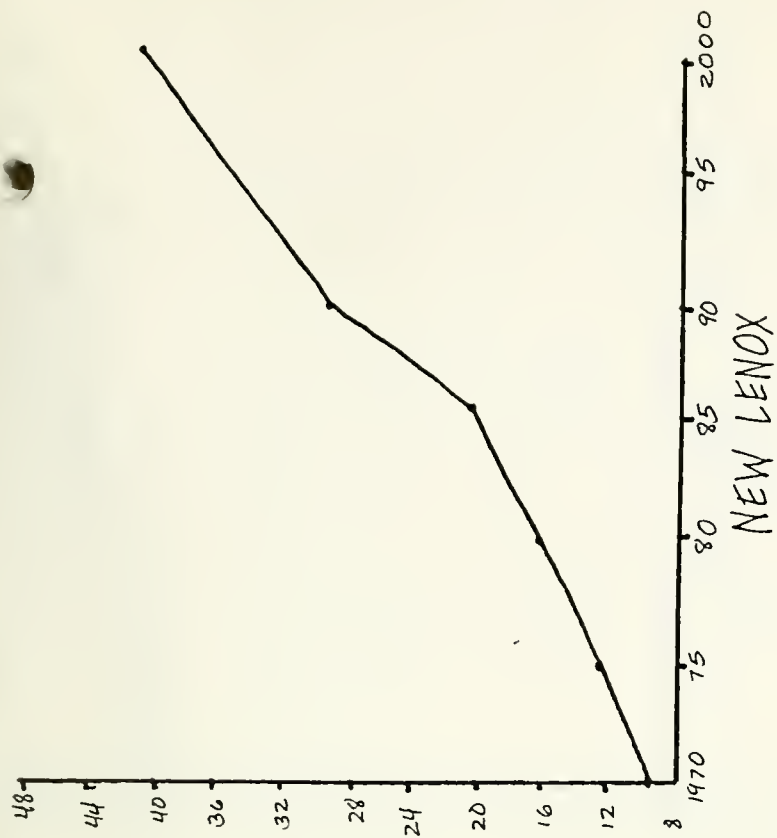
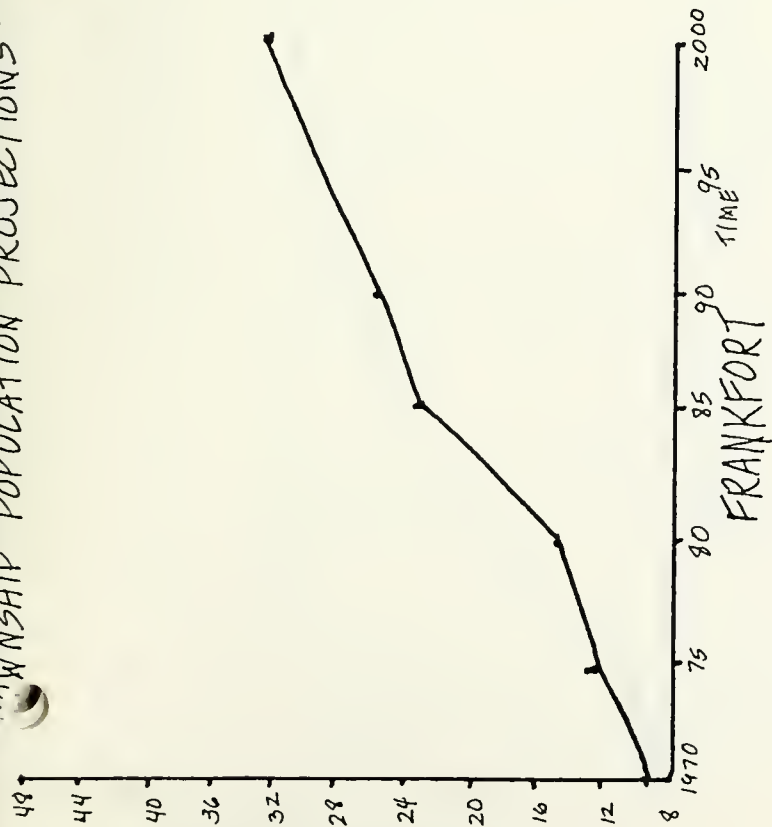


TOWNSHIP POPULATION PROJECTIONS-(OF 3)



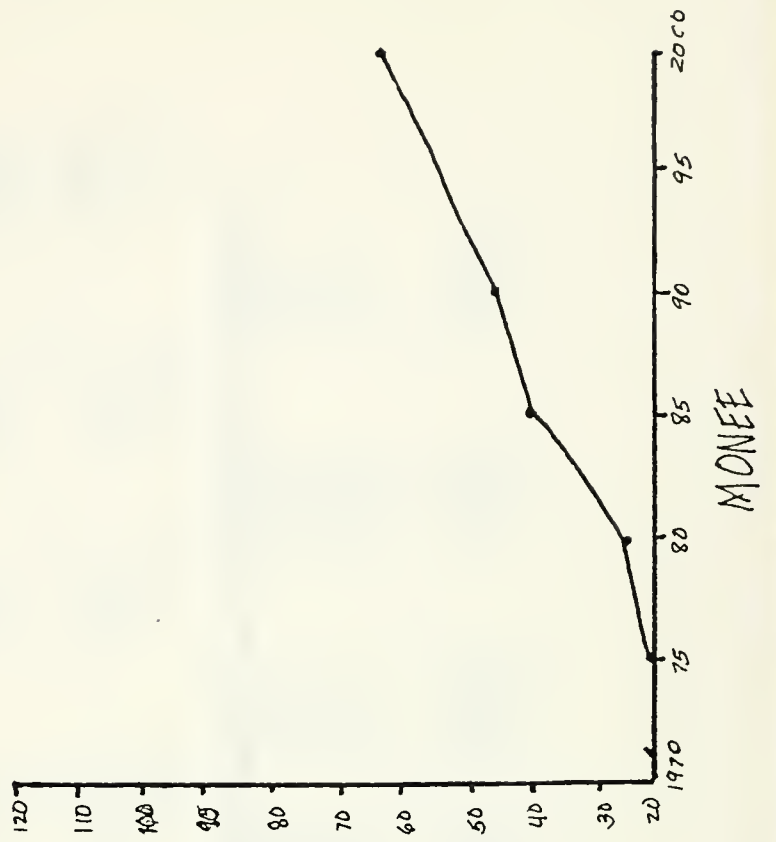
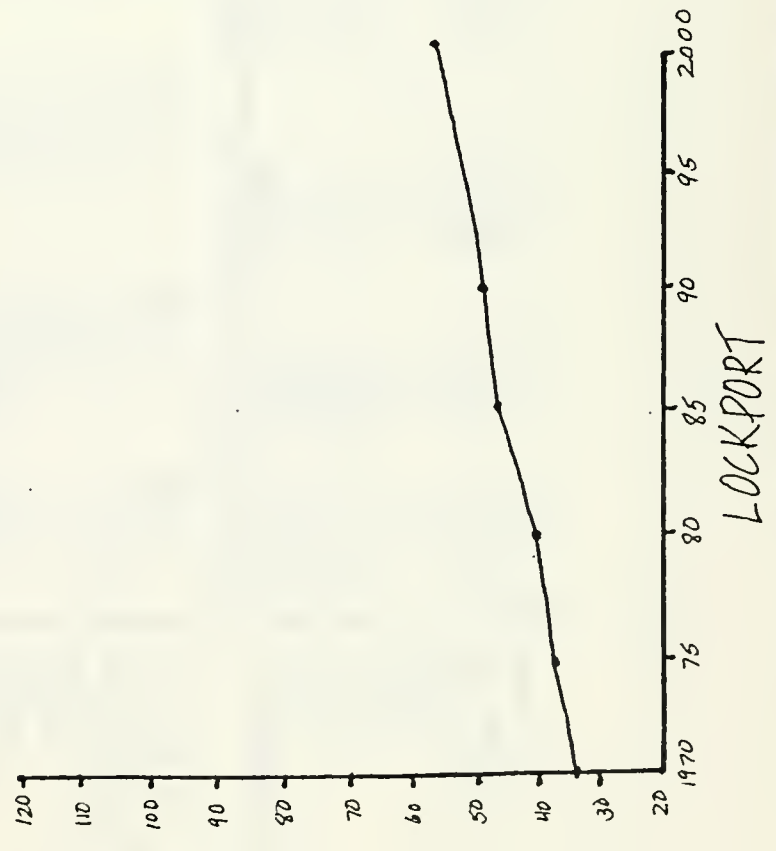
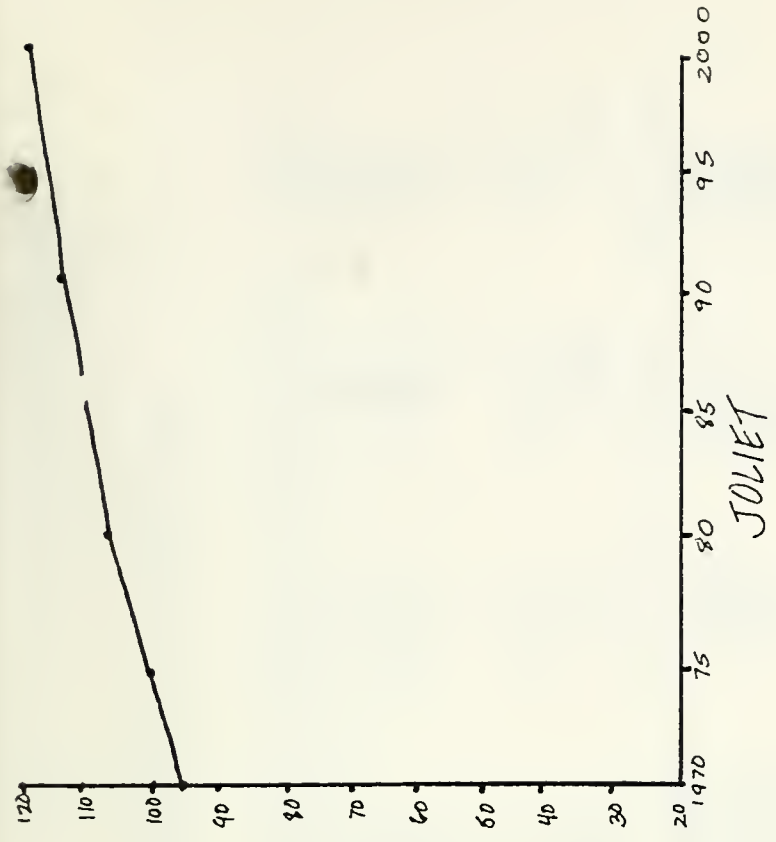
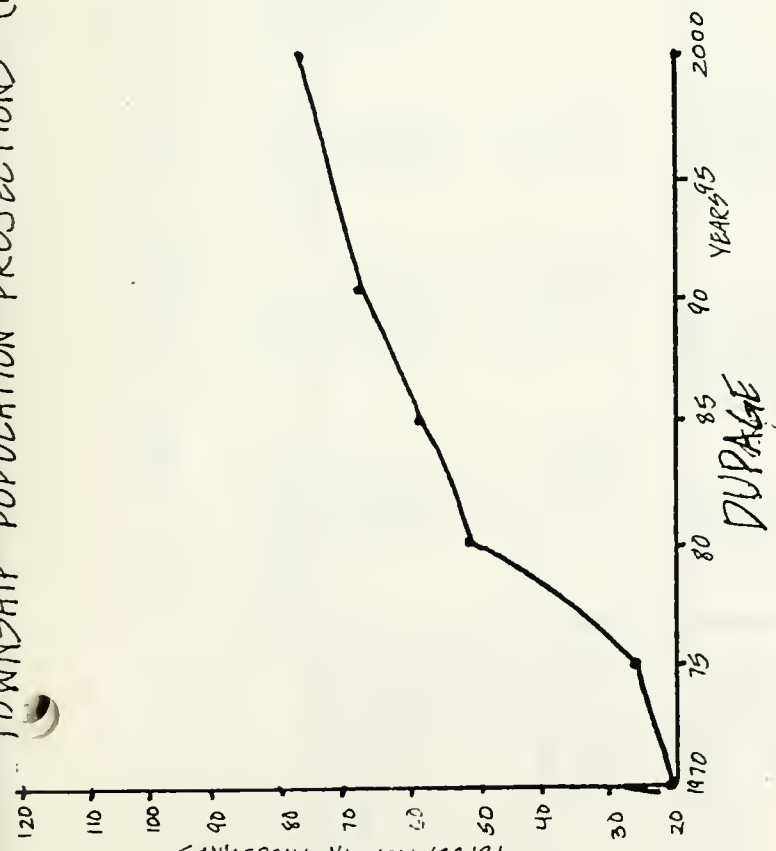
TOWNSHIP POPULATION PROJECTIONS - (000)

POPULATION IN THOUSANDS



TOWNSHIP POPULATION PROJECTIONS - (000)

POPULATION IN THOUSANDS



WILL COUNTY TOWNSHIP POPULATIONS AND INFORMATION

1970 Census

	Channahon	Grete	Custer	DuPage	Florence	Frankfort	Green Garden	Homer
population	2712	15270	949	20037	671	9633	791	6686
male	1367	7631	471	10071	365	4805	404	3375
female	1345	7639	478	9966	306	4828	387	3311
white	2683	15237	948	19916	662	9601	784	6641
negro	6	1	-	7	6	1	-	35
other	23	32	1	114	3	31	7	10
median age	25.7	25.8	27.5	18.6	23.9	24.5	27.4	23.6
under 18	40.2%	39.9%	38.5%	50.1%	38.9%	42.3%	38.3%	43.3%
65 & over	5.5%	5.8%	9.5%	1.4%	7.7%	6.1%	7.6%	4.3%

	Jackson	Joliet	Lockport	Manhattan	Monroe	New Lenox	Peotone	Plainfield
population	1755	95643	33354	2374	7240	10049	2914	11028
male	899	46128	18859	1200	3634	5048	1399	5486
female	866	49873	14495	1174	3606	5001	1515	5542
white	1751	83549	28594	2348	7093	10025	2911	10992
negro	1	12005	4628	-	91	4	2	2
other	3	447	132	26	56	20	1	34
median age	28.1	28.3	25.9	27.4	24.9	26.9	29.4	25.2
under 18	35.4%	34.3%	34.5%	37.6%	43.1%	40.9%	34.5%	41.4%
65 & over	8.8%	10.5%	4.7%	9.4%	4.1%	5.2%	13.5%	5.2%

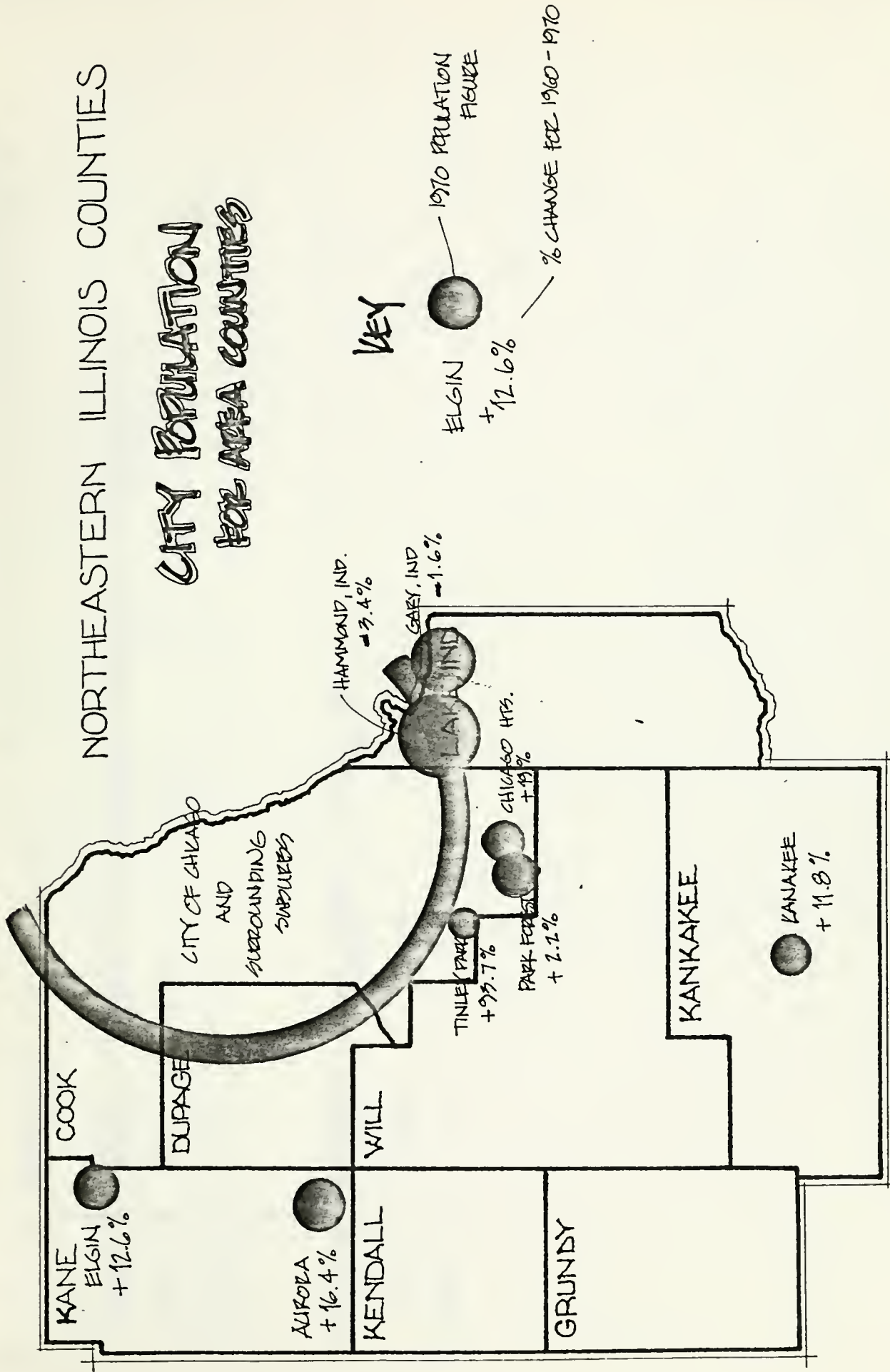
	Reed	Troy	Washington	Wesley	Wheatland	Will	Wilmington	Wilton
population	2646	11568	2940	2331	1794	750	5296	709
male	1337	5970	1403	1154	907	390	2627	359
female	1309	5598	1537	1177	887	360	2669	350
white	2610	11343	2926	2326	1788	749	5284	708
negro	30	206	-	-	-	1	2	-
other	6	19	14	5	6	-	10	1
median age	26.4	21.0	30.4	23.7	26.4	29.4	28.9	22.6
under 18	38.2%	46.5%	33.8%	43.6%	39.3%	39.1%	34.5%	44.0%
65 & over	8.4%	2.0%	12.2%	6.3%	5.5%	8.5%	9.5%	7.5%

Table 8-7 Households in Will County Townships, 1970 to 2000 (in thousands)				
	<u>1970</u>	<u>1980</u>	<u>1990</u>	<u>2000</u>
Will County Total	70.7	102.9	139.8	173.4
Townships:				
Channahon	.8	1.1	1.5	1.9
Crete	4.3	5.9	7.8	9.3
Custer	.3	.3	.4	.5
DuPage	4.5	12.0	16.6	20.1
Florence	.2	.2	.3	.3
Frankfort	2.6	4.3	7.4	9.8
Green Garden	.2	.2	.3	.4
Homer	1.7	2.6	4.1	6.0
Jackson	.6	.7	.9	1.0
Joliet	30.2	34.8	39.2	42.5
Lockport	8.1	10.5	13.6	16.5
Manhattan	.7	.9	1.1	1.3
Monee	1.9	7.3	13.4	19.1
New Lenox	2.8	4.7	8.9	12.8
Peotone	1.0	1.2	1.5	1.7
Plainfield	3.0	4.9	7.3	9.2
Reed	.8	1.1	1.3	1.5
Troy	2.9	4.7	7.4	10.7
Washington	.9	1.2	1.3	1.5
Wesley	.6	.8	1.0	1.1
Wheatland	.5	.9	1.4	2.0
Will	.2	.3	.3	.4
Wilmington	1.7	2.1	2.7	3.2
Wilton	.2	.2	.3	.3

Table C-7 Employment in Will County Townships, 1970 to 2000 (in thousands)				
	<u>1970</u>	<u>1980</u>	<u>1990</u>	<u>2000</u>
Will County Total	82.5	109.0	124.0	143.0
Townships:				
Channahon	10.8	10.9	11.0	11.0
Crete	1.7	2.1	2.4	2.7
Custer	.1	.3	.4	.4
DuPage	2.3	7.6	8.9	10.9
Florence	.1	.3	.4	.4
Frankfort	1.6	3.1	5.2	9.0
Green Garden	.1	.3	.4	.5
Homer	.5	1.3	2.0	2.9
Jackson	.2	.4	.5	.5
Joliet	44.2	49.7	51.0	51.7
Lockport	8.9	11.3	12.8	14.9
Manhattan	.2	.4	.5	.5
Monee	1.1	2.8	4.7	7.7
New Lenox	1.6	3.4	7.1	12.0
Peotone	1.1	1.4	1.5	1.5
Plainfield	2.5	6.3	6.7	7.0
Reed	.4	.6	.7	.7
Troy	1.4	2.0	2.3	2.8
Washington	.7	.9	1.0	1.0
Wesley	.4	.5	.6	.6
Wheatland	.3	.4	.6	.7
Will	.2	.3	.5	.6
Wilmington	1.5	1.9	2.0	2.1
Wilton	.1	.3	.4	.4

NORTHEASTERN ILLINOIS COUNTIES

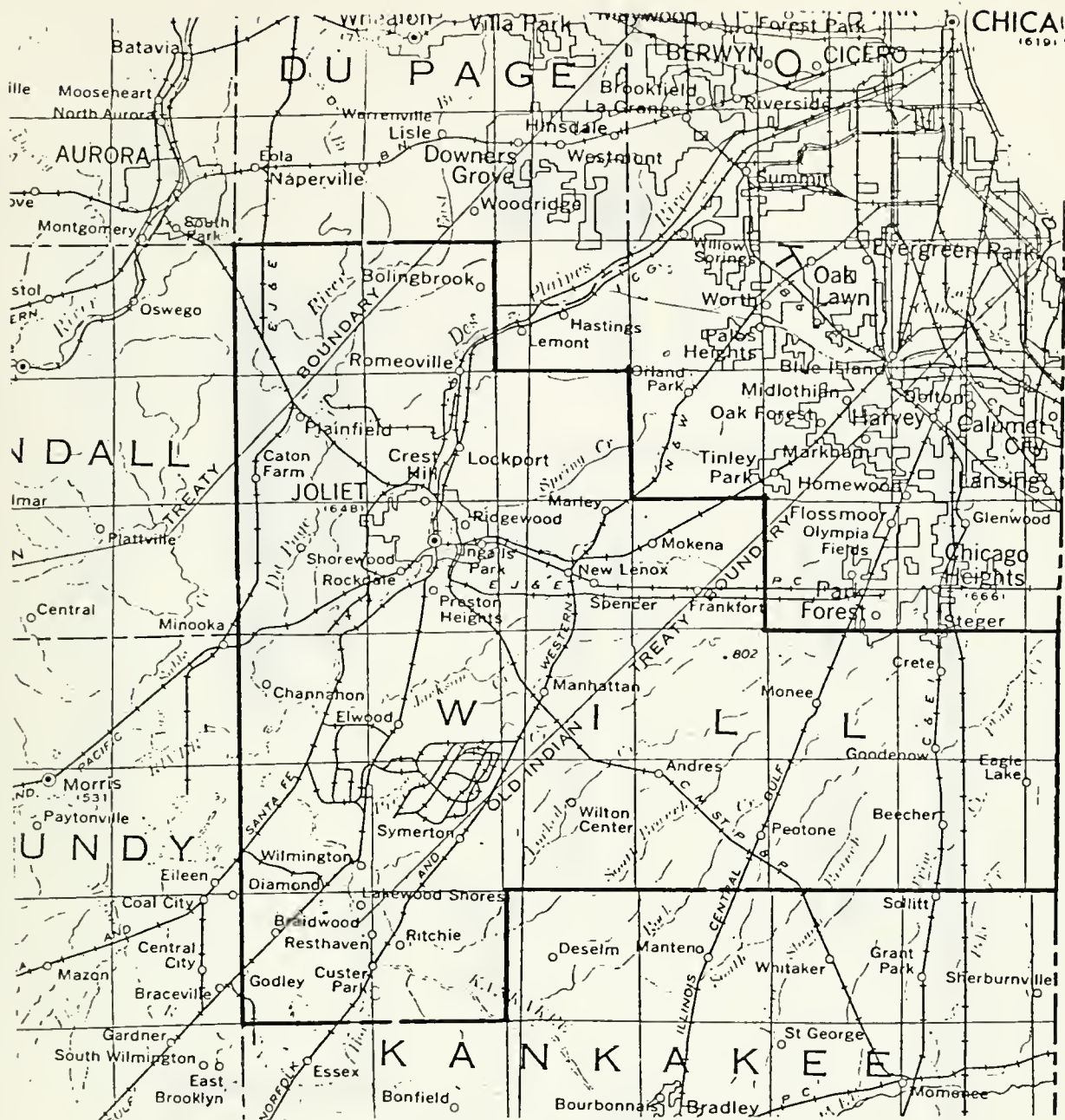
CITY POPULATION FOR AREA COUNTIES



SURROUNDING CITY POPULATIONS

	Aurora	Chicago Hts.	Elgin	Garv. Ind.	Hammond, Ind.
1960	63715	34331	49447	178320	111698
1970	74182	40900	55691	175415	107885
% change	16.4	19.1	12.6	-1.6	-3.4

	Kankakee	Park Forest	Tinlev Park
1960	27666	29993	6392
1970	30944	30638	12382
% change	11.4	2.2	93.7



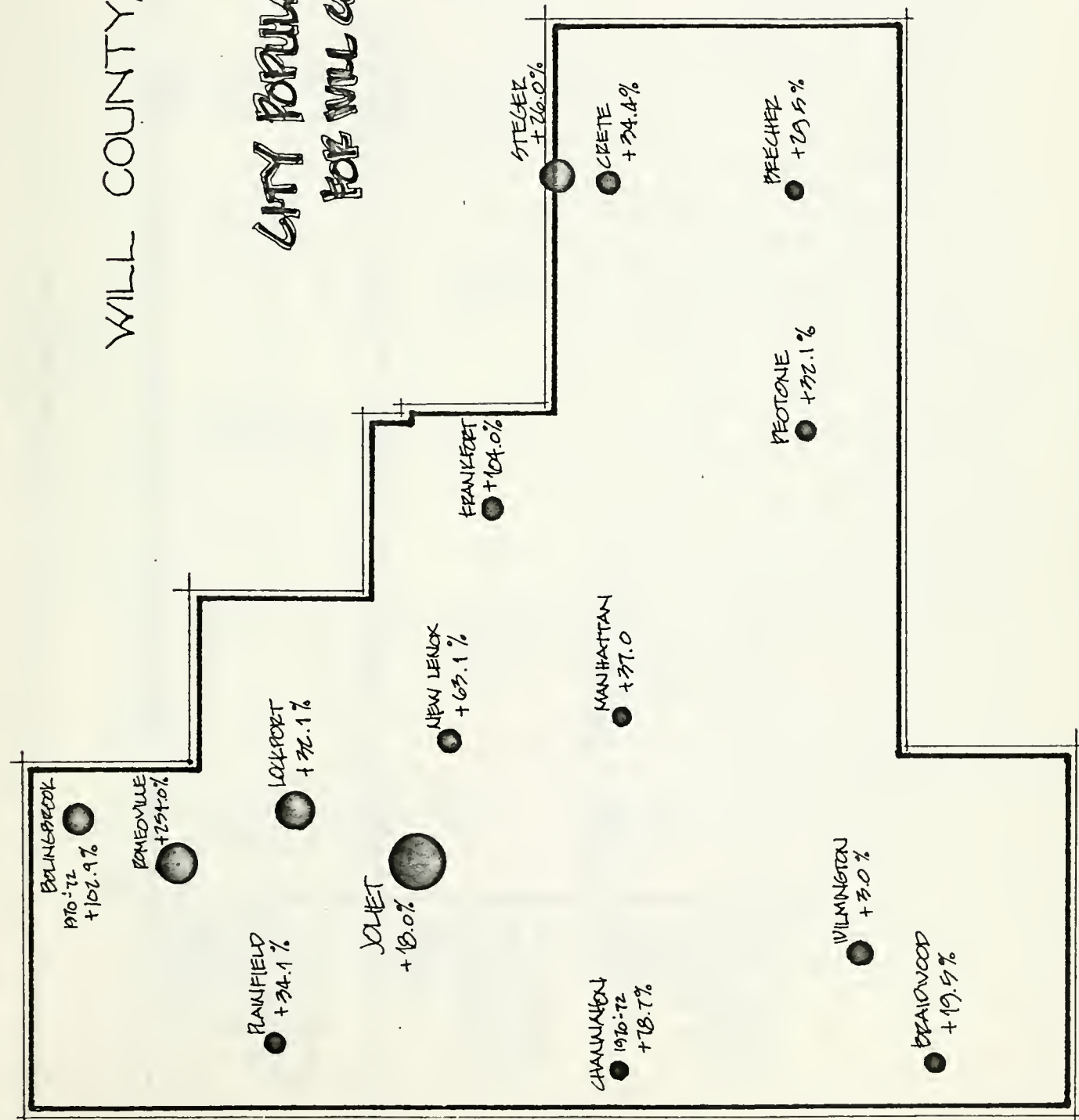


WILL COUNTY, ILLINOIS

CITY POPULATION FOR WILL COUNTY

KEY

1970 POPULATION
FIGURE
+ 18.0%
% CHANGE FOR
1960-1970

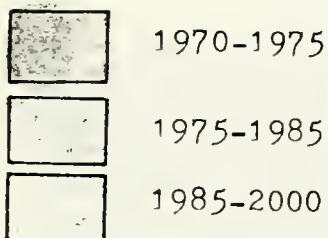
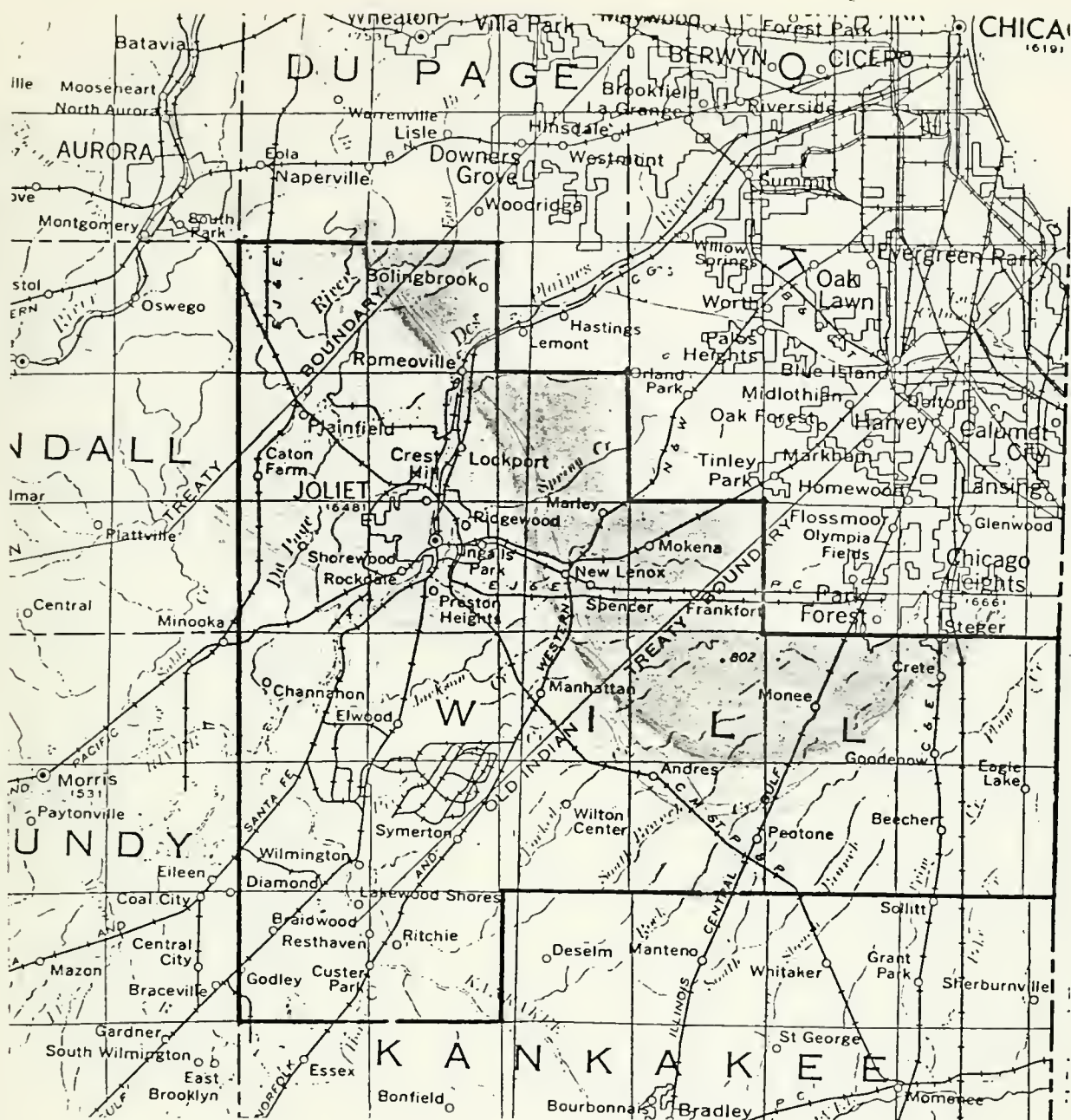


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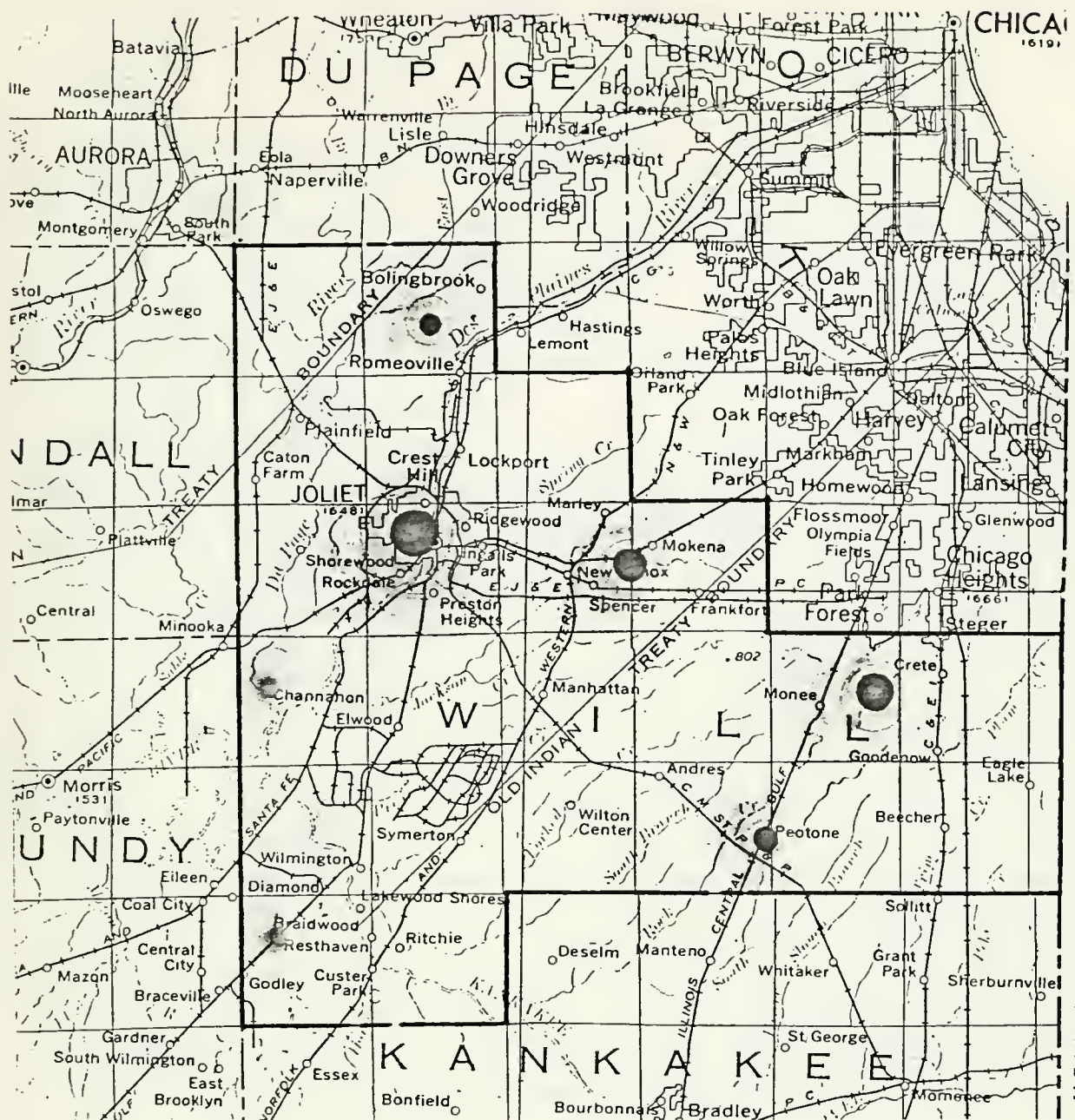
WILL COUNTY POPULATION AREA. INFORMATION

	Beecher	Bolingbrook	Braidwood	Channahon	Crete	Frankfort	Joliet
1960					3463		66680
% change	1770	7275	2323	1505	4656	2325	78887
1970	29.5		19.5		34.4	104.8	18.1
% change	31.6		37.8	40.2		40.8	
% under 18	14.2		8.7	5.7		7.3	
% 65 & over	31.9	19.2	26.4	25.1	30.6	26.4	
median age							
	Lockport	Manhattan	New Lenox	Peotone	Plainfield	Homeoville	
1960	7560		1750		2183	3574	
% change	9985	1530	2855	2345	2928	12674	
1970	32.1	37.0	63.1	32.1	34.1	254.6	
% change		37.4		34.8			
% under 18		9.0		14.6			
% 65 & over		26.8	27.2	29.3	31.3		
median age							
	Steger	Wilmington					
1960	6432	4210					
% change	8104	4335					
1970	26.0	3.0					
% change							
% under 18							
% 65 & over	26.4	29.0					
median age							

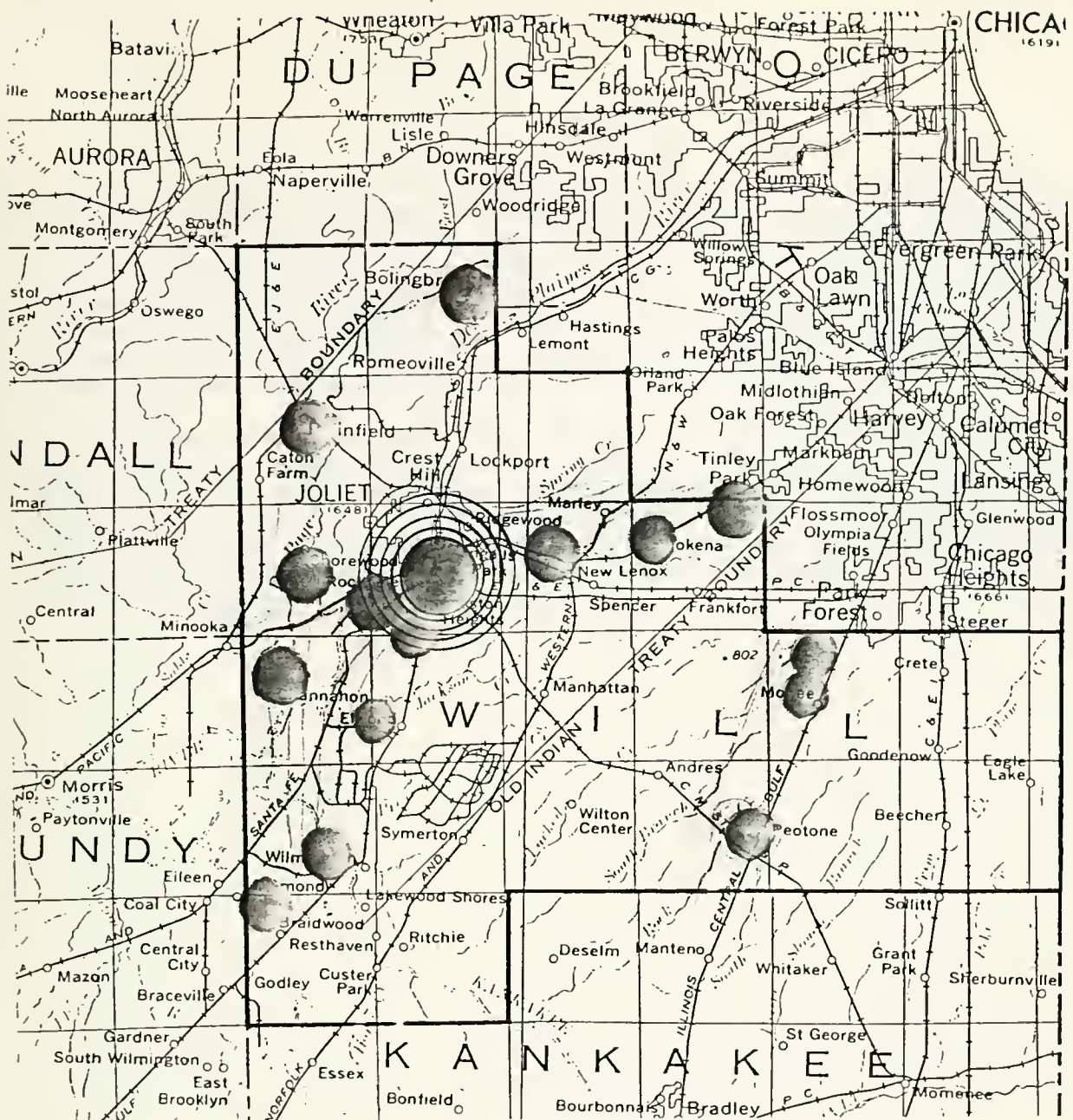


Population projection based on township population increases for the perspective years.





Population projection based on city population increases shows a strong growth pattern in the north-eastern section of Will County. The areas shown above are of greatest importance because of their projected increases. These satellite centers could prove to become population cores with population expanding outwards. This would then tend to have great impact on the surrounding land use.



Population projections:

- Because of the current migratory trend away from the heart of Chicago, it would be projected that increased city population could occur around or near major transportation routes. This would thus serve as a major transportation link into the city
- Joliet may serve as a central core city, providing employment and services. This would then effect the migratory growth towards Chicago and put more pressure on Joliet and the surrounding areas.

SUMMARY

Past growth has been influenced by Chicago, but present trends seem to draw away from this pattern, and Will County is becoming more dependant on itself. This will have an effect on the population trends in the future which will take the same course experienced by the sprawling of Chicago. People will be attracted to Will County by what it has to offer rather than only by its proximity to Chicago. Will County offers a pleasing contrast to the living conditions experienced by many Cook County residents.

Larger cities within Will County will become core-centers offering major industrial and commercial services. Therefore, there will not need to be as much interaction between Will County and the Chicago area. A greater percentage of Will County residents will seek employment in areas other than Cook County except along major transportation routes, where Chicago-- Will County interaction will probably remain high.

SOURCES :

- Illinois Populations Projections
State of Illinois Bureau of the Budget February 1975
- 1970 Census of the United States
- 1970 Census of Population and Housing - PHC (1) - 43 table p-2
- 26 table p-3
- Northern Illinois Metropolitan Area Planning Commission Suburban Factbook
- Population Trends and Prospects for the Chicago-Northwestern Indiana Consolidated
Metropolitan Area : 1960 - 1990
- City and County Data Book
US Department of Commerce Bureau of Census, 1972
- Characteristics of the population
Vol. 2, Part 15, Illinois, Section 1
US Department of Commerce, Bureau of Census
- Indiana and Illinois road maps

REGIONAL LAND USE TRENDS

Will County is part of the six county planning area known as the Northeastern Illinois Planning Commission. The center of this planning unit is Cook County. Cook County has a large impact on the surrounding counties' land use. When studying land use trends, it is important to compare Will County with the other five counties in the planning unit rather than with the state as a whole.

The general trend in the region is a decline in residential density. This is shown by the fact that land developed for urban uses has increased faster than the population, 22 percent versus 12 percent.¹

All categories of land use from 1964 to 1970, except vacant and agricultural land, have increased in the northeastern Illinois region. Residential land had the most significant increase, 12 square miles a year, followed by public open space, 8.7 square miles; streets, 5.4 square miles; institutional, 4.3 square miles; TCUM, 2.8 square miles; and streets, 5.4 square miles.²

Figure 1 shows the percentage distribution of land use by type of land uses (1970). This map compares the percentage of land use types in Will County, with the surrounding counties that have a major impact on land use distribution in Will County.

The four land use types chosen are those which are indicators of urbanization. These percentages of land use types show that Will County is less urbanized than the other counties in the region. It also tells us that Will County is below average in the amount of public open space it contains.

GENERAL LAND USE TRENDS

When dealing with land use patterns, it is useful to study trends. In figures 2a-2h a breakdown of land use in acres by townships is given showing acreage in 1964 as compared to acreage in 1970. The reason for the use of 1970 data is due to the lack of up-to-date information; 1970 was the most recent published data for Will County. The purpose of these maps is to show the distribution of land uses over the county and to show which areas have increased during the six-year study period. Eight categories were mapped to show existing land use by townships.

The components and general definitions of each category are as follows:

- (1) RESIDENTIAL. Includes land directly related to single-family and two-family houses, town houses, apartments, and mobile homes. Land within 150 feet of farm houses is considered residential.

¹ page 1, Northern Illinois Planning Commission- Regional Data Center Bulletin 3/72.

² *ibid.*

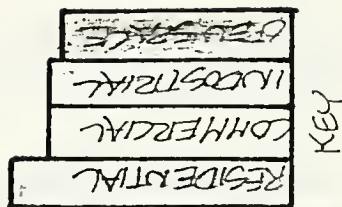
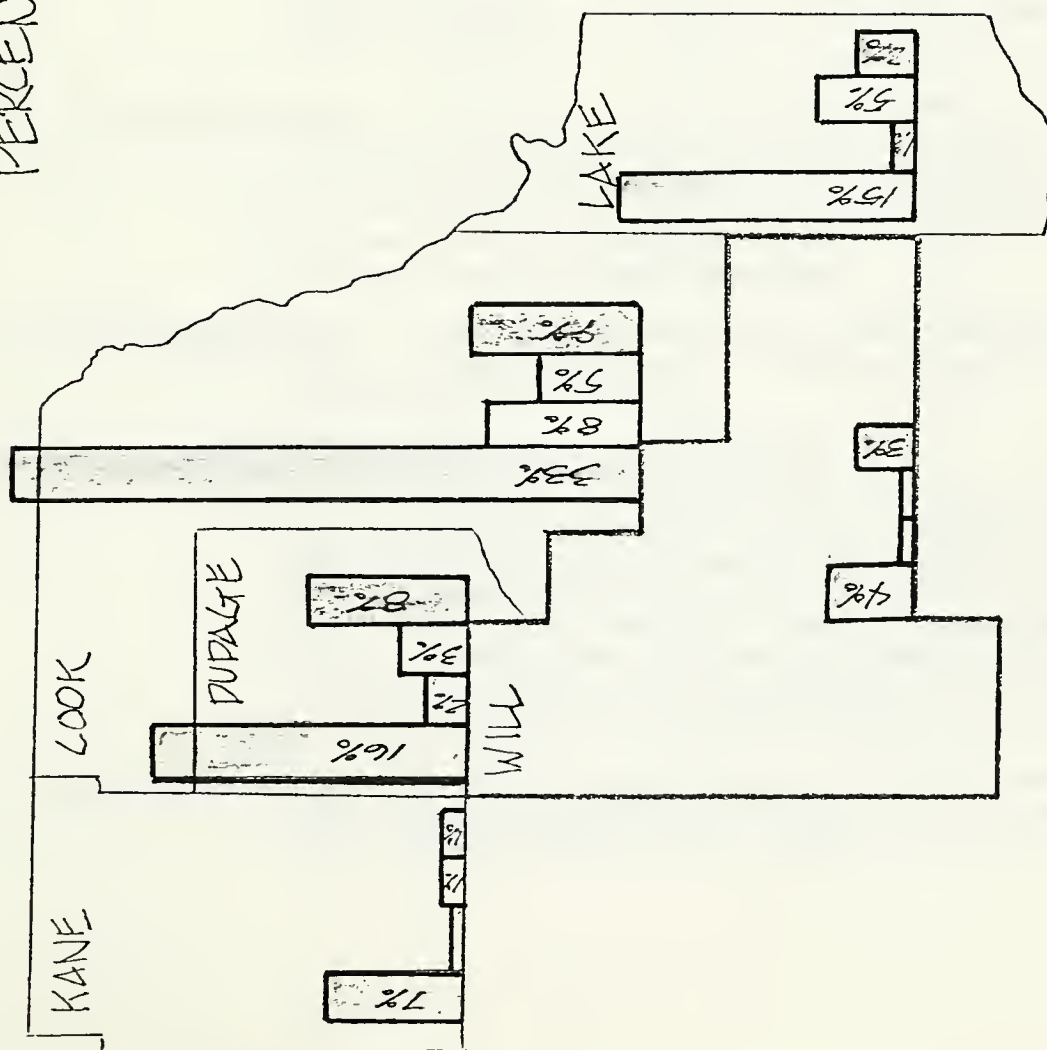
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MAY 1972

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MAY 1972

PERCENTAGE DISTRIBUTION OF LAND BY TYPE OF LAND USES

1970

figure 1



SOURCE: TABLE 3 - NIPCL - REGIONAL DATA CENTER BULLETIN 3/72

- (2) COMMERCIAL. Includes building, parking area and other land directly related to retail and wholesale trade, office structures and personal, business and professional services.
- (3) INDUSTRY. Includes all industrial buildings and warehouses, with their parking areas, adjacent yards and landscaped grounds. Excluded are mining and other extractive industries.
- (4) INSTITUTIONAL Includes all buildings and related grounds belonging to public or quasi-public agencies, governments or organizations such as churches or fraternal groups. This would encompass medical facilities, educational facilities, religious institutions, governmental administration and service buildings (except where included in the category, Transportation-Communications-Utilities-Mining) and military installations. Where the grounds of public buildings are clearly being used for a function not directly contributing to the institutional function, they have been classified by the land use classification and appropriate to that function.
- (5) PUBLIC OPEN SPACE. Includes all outdoor recreation lands, except that directly associated with public buildings. Privately owned outdoor recreation lands such as golf courses or tennis clubs are also included, as are amusement parks and race tracts. Cemeteries are also a part of Public Open Space.
- (6) AGRICULTURE/VACANT. Includes farm land and all vacant land, within 150 feet of farm houses or land landscaped to relate to other land uses.
- (7) TRANSPORTATION/COMMUNICATIONS/UTILITIES/MINING. Includes airports, railroad rights-of-way and terminals. This category does not include streets or roads but does include easements for communication lines or pipeline stations, where the land is not used for any other function. Sewage treatment and water treatment plants are also included. Land used for mines, quarries or sand and gravel extraction are considered a part of the classification.
- (8) STREETS AND ALLEYS. Includes streets, roads, highways, expressways and tollroads allowing public access. Private roads, such as farm lanes, are not included.

RESIDENTIAL LAND IN ACRES

figure 2a

CHANGES IN ACRES	1964	1970
---------------------	------	------

LAND USE DISTRIBUTION AND TRENDS BY TOWNSHIP		RESIDENTIAL LAND IN ACRES		figure 2a		CHANGES IN ACRES	
(64)	1152-1212	(64)	384	(192)	1216-1408	(128)	1964-1970
(256)	1792-2304	(512)	1088-1344	(192)	1244-1536	(128)	1394-1472
(320)	4800-5696	(896)	704-1024	(192)	384	(128)	1600-1792
(64)	256-320	(0)	256-320	(0)	384	(0)	192
(64)	528-640	(0)	528-640	(0)	192	(0)	512
(0)	448	(64)	528-640	(64)	192	(0)	512

LAND USE DISTRIBUTION AND TRENDS BY TOWNSHIP

COMMERCIAL LAND IN ACRES

figure 2b

[illegible]



LAND USE DISTRIBUTION AND TRENDS BY TOWNSHIP

AGRICULTURE - VACANT LAND IN ACRES

figure 2.f

		CHANGES IN ACRES	
		1964	1970
(64)	(768)	21,556 28,422	19,550 18,752
(168)	(1,664)	11,820 17,471	11,000 14,336
(640)	(2,176)	17,856 17,216	12,224 10,048
(572)	(576)	10,500 10,048	15,512 15,436
(2,56)	(64)	12,698 12,552	11,008 10,944
(0)	(64)	7,852	21,232 21,168
(256)	(512)	20,544 20,268	18,944 18,432
(512)	(256)	19,712 19,456	22,208 22,208
(0)	(0)	21,632 21,632	22,008 21,440
(256)	(256)	22,008 21,440	22,336 22,144
(960)	(960)	20,160 19,200	23,872 23,296
(576)	(64)	27,136 27,072	



LAND USE DISTRIBUTION AND TRENDS BY TOWNSHIP

T/C/U/M LAND IN ACRES

figure 29

(0)		(256)	
640	640	1216	1472
(0)	(512)		
2112	2112	1536	2048
(0)	(640)		
1664	1664	1344	1934
(256)	(64)		
448	704	128	192
(0)	(64)		
576	576	128	192
(0)	(0)		
320	320		

LAND USE DISTRIBUTION
AND TRENDS BY TOWNSHIP

T/C/U/M LAND IN ACRES

figure 2g

CHANGES
IN ACRES

1964	1970
------	------

640	640
-----	-----

1216	1472
------	------

2112	2112
------	------

1664	1664
------	------

448	704
-----	-----

576	576
-----	-----

320	320
-----	-----

1536	2048
------	------

1344	1934
------	------

128	192
-----	-----

128	192
-----	-----

640	640
-----	-----

448	448
-----	-----

896	896
-----	-----

768	768
-----	-----

704	704
-----	-----

256	256
-----	-----

64	64
----	----

512	512
-----	-----

512	512
-----	-----

704	704
-----	-----

384	384
-----	-----

256	320
-----	-----

64	128
----	-----

192	192
-----	-----

LAND USE DISTRIBUTION AND TRENDS BY TOWNSHIP

STREETS/LAND IN ACRES

figure 2h

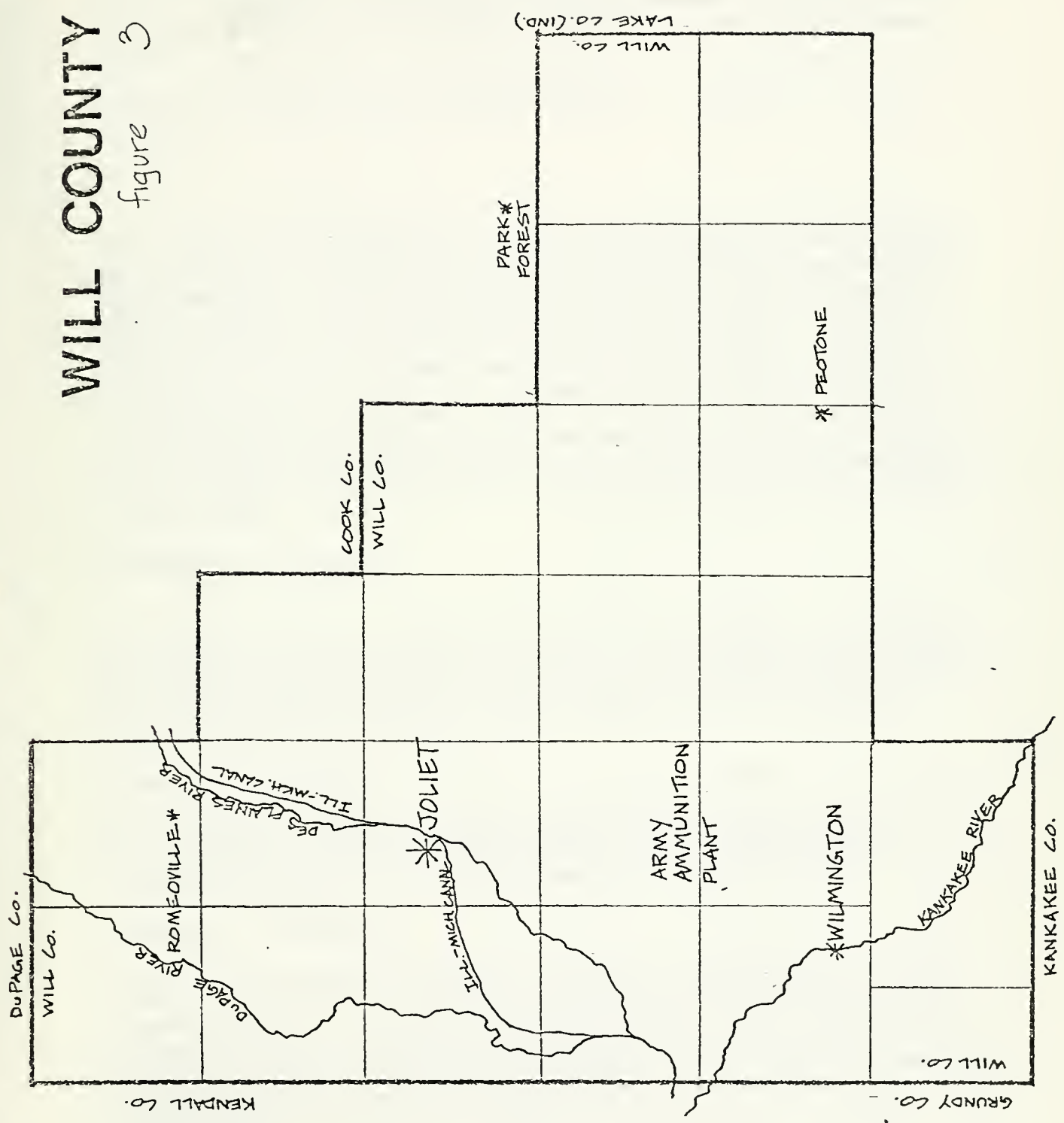
(14)	(128)	512	576	768	896	(128)	(0)	448	448	(64)	(0)	768	896	(64)	(128)	640	768	832	896	(64)	(0)	512	512
(128)	(128)	768	896	840	768	(128)	(0)	768	768	(0)	(0)	512	512	(0)	(128)	512	768	640	768	(0)	(0)	512	512
(128)	(128)	1088	1216	1792	1920	(128)	(0)	768	768	(0)	(0)	512	512	(0)	(128)	512	768	640	768	(0)	(0)	512	512
(128)	(128)	448	576	576	1088	(128)	(0)	576	576	(0)	(0)	512	512	(0)	(128)	512	768	640	768	(0)	(0)	512	512
(128)	(128)	512	640	896	896	(128)	(0)	448	448	(0)	(0)	768	768	(0)	(128)	512	768	640	768	(0)	(0)	512	512
(128)	(128)	512	640	896	896	(128)	(0)	448	448	(0)	(0)	768	768	(0)	(128)	512	768	640	768	(0)	(0)	512	512
(128)	(128)	512	640	896	896	(128)	(0)	448	448	(0)	(0)	768	768	(0)	(128)	512	768	640	768	(0)	(0)	512	512

CHANGES
IN ACRES

1964 1970

WILL COUNTY

figure 3



In the following section, each land use category is studied according to its distribution by township. Twenty-three townships have been used. There are actually 24 townships, but Custer and Wesley have been combined for ease in mapping, as the natural boundary between them occurs along the Kankakee River, and, therefore, creates two rather awkward-shaped parcels of land.

Figure 3 will help to locate those areas that are referred to in the analysis

The increases in the majority of the land uses associated with urbanization occurred in the Joliet area and in those areas bordering Cook and Dupage Counties. The areas of least growth were those bordering the remaining counties and in the area of the Joliet Arsenal. If past conditions continue, this growth pattern will also continue. Wherever residential areas are located, there will also be commercial areas and industrial areas (which must be near major transportation corridors). Residential need not come before these other uses; it may come afterward to support them. Regardless of the land use pattern, more open space must be acquired, even if no growth occurs. Compared to the surrounding (NIPC) counties, Will County has the lowest percentage of land devoted to open space.

RESIDENTIAL -- FIGURE 2a

Ten of the 23 townships in Will County showed no increase in residential land acreage. Those townships that had no increase between 1964-1970 were those townships that had relatively low residential acreage in 1964. Most of the growth occurred in those townships that border Cook and Dupage Counties and the Joliet area.

COMMERCIAL -- FIGURE 2b

The trend over the six-year study period is one of little increase. Only four townships out of 23 show any increase. The majority of the commercial acreage is in the Joliet and Park Forest South areas.

INDUSTRIAL -- FIGURE 2c

Most of the industry is located in the Joliet area along the Des Plaines River. Industry will occur along major transportation routes. It is interesting to note that there is practically no industry located along the Kankakee River. Since this data was compiled, there has been a major addition in industrial acreage. The Governor's State Industrial Park was developed along I-57 near Park Forest South. This indicates a new trend in industrial location, that is industry is locating near interstates rather than by rivers.

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INSTITUTIONAL -- FIGURE 2d

The Army arsenal and state penitentiary are the reasons for the large amount of institutional land found in Will County. The arsenal, alone, takes up 46 square miles. Institutional land has shown little increase. The areas that have increased are near Joliet.

PUBLIC OPEN SPACE -- FIGURE 2e

The greatest increase in public open space occurred in townships bordering Cook and DuPage Counties and areas lying within the Joliet area. All other areas showed no increase. The greatest acreage occurs along the Kankakee River and the area between the Des Plaines and Kankakee Rivers. If present trends continue, there will be a need for more open space in those townships that border DuPage and Cook Counties. These areas contain a low percentage of the total open space acreage in the county.

AGRICULTURE/VACANT -- FIGURE 2f

During the period of 1964-1970, Will County lost agricultural and vacant land at an annual rate of 1,700 acres. The majority of this land borders Cook and DuPage Counties or lies in the area surrounding Joliet. This land use category will continue to lose acreage as the other land uses increase.

TRANSPORTATION/COMMUNICATION/UTILITIES/MINES -- FIGURE 2g

Of the 73 townships, only 8 showed any increase in acreage. Two of those townships are in the Joliet area, but overall, there is no pattern as to where the increases occur.

STREETS -- FIGURE 2h

Twelve of the 23 townships showed an increase in the acres of land used for streets. The increases occurred in townships bordering Grundy, Kendall, DuPage, and Cook Counties, with the largest increase occurring in the Joliet arsenal area.

The existing land use map for Will County was compiled from a 1964 land use map done by NIPC which was updated by using the USGS 7½ minute quadrangle sheets that had been revised in 1974. This detailed map was then transferred onto the base map by use of a 1/4 mile grid system. Each grid square was then colored according to the predominant land use in that square. The basic categories used were residential, institutional, open space, and agricultural and vacant land which would be defined in the same way that NIPC used them. In addition, several new categories had to be created that would involve a combination of two different land uses. The reason that this was done is that when mapping by 1/4 section, some of the land uses, such as industrial or commercial, might never be the predominant land use in a square. Therefore, in order for these uses to appear on the map, categories, such as residential/commercial/, industrial/agricultural were devised. The categories used on the existing land use map are as follows:

1. Residential
2. Residential and agricultural
3. Residential and commercial
4. Institutional
5. Industrial and agricultural
6. Open space
7. Open space and agricultural
8. Mines and agricultural
9. Agricultural and vacant land.

This map may not be exactly accurate because our data is not up-to-date. For instance, there should be more industrial land in Monee Township, in which the Governor's Gateway Industrial Park is located. However, none of our data included its exact acreage or location.

PROPOSED OPEN SPACE - see Figure 5

The proposed and existing open space map for the Will County region was compiled from the comprehensive visual planning maps prepared by Northeastern Illinois Planning Commission (NIPC). The NIPC map is used as a planning tool which is reviewed monthly and updated. The first priority open space is only a projected idea -- not official. They also use the map in the proposals for the A-95 review process.

NIPC uses maps like these for site suitability in accordance to transportation, waterways, population, and open space. In the open space map, the categories are:

Existing forest preserve: land which is presently owned by the Forest Preserve Districts in their respective counties.

Golf: land which is being used for public and private golf courses.

First priority open space: land recommended by NIPC to be purchased either publically or privately to be left as "open space."

Other open space: open space which serves no recreational purposes i.e. Army Arsenal).

ENVIRONMENTALISTS' VIEW - see Figure 6

The view taken by those who would be interested in retaining and establishing open space in the Will County region is depicted in the "Environmental" map.

This map is the result of the interpolation of existing first and second priority open space which was established by Northeastern Illinois Planning Commission (NIPC). If possible, the concerned environmental planner would purchase the first and second priority open space and purchase land which would connect the existing property to form a "greenbelt" system.

An important consideration in planning would also be to preserve the river vegetation and shoreline. The two major river corridors through the county are the DesPlaines and Kankakee.

Another concern of the environmental planner is that of placement of residential areas next to open space corridors as well as away from sensitive natural areas and out of prime agricultural land.

PLANNERS' VIEW - see Figure 7

This view, taken by those who are primarily interested in a balance of land uses in the Will County region, as depicted on the "Planners' map."

The planners must consider all aspects of regional development which would include:

- (1) housing and commercial development due to increasing population

The first part of the report deals with the general conditions of the country, and the second part with the results of the various expeditions.

1. General Conditions

The country is situated in the north-western part of the island, and is bounded by the sea on the north and west.

The climate is generally dry, but there is a heavy rain season from December to February.

The soil is generally fertile, but there are some areas which are very poor.

The principal occupations of the people are agriculture and stock raising.

The principal crops are sugar cane, rice, and coconuts.

The principal stock raised is cattle, and there are also some sheep and pigs.

The principal towns are *San Juan* and *San Pedro*.

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The principal stock raised is cattle, and there are also some sheep and pigs.

The principal towns are *San Juan* and *San Pedro*.

- (2) Industrial development as it expands outward from the Chicago region.
- (3) Adequate open space for the public as well as preservation of sensitive natural areas.

A compromise between what is considered best and what is needed must often be made and they are depicted on the planners' map.

DEVELOPERS' VIEW - see Figure 8

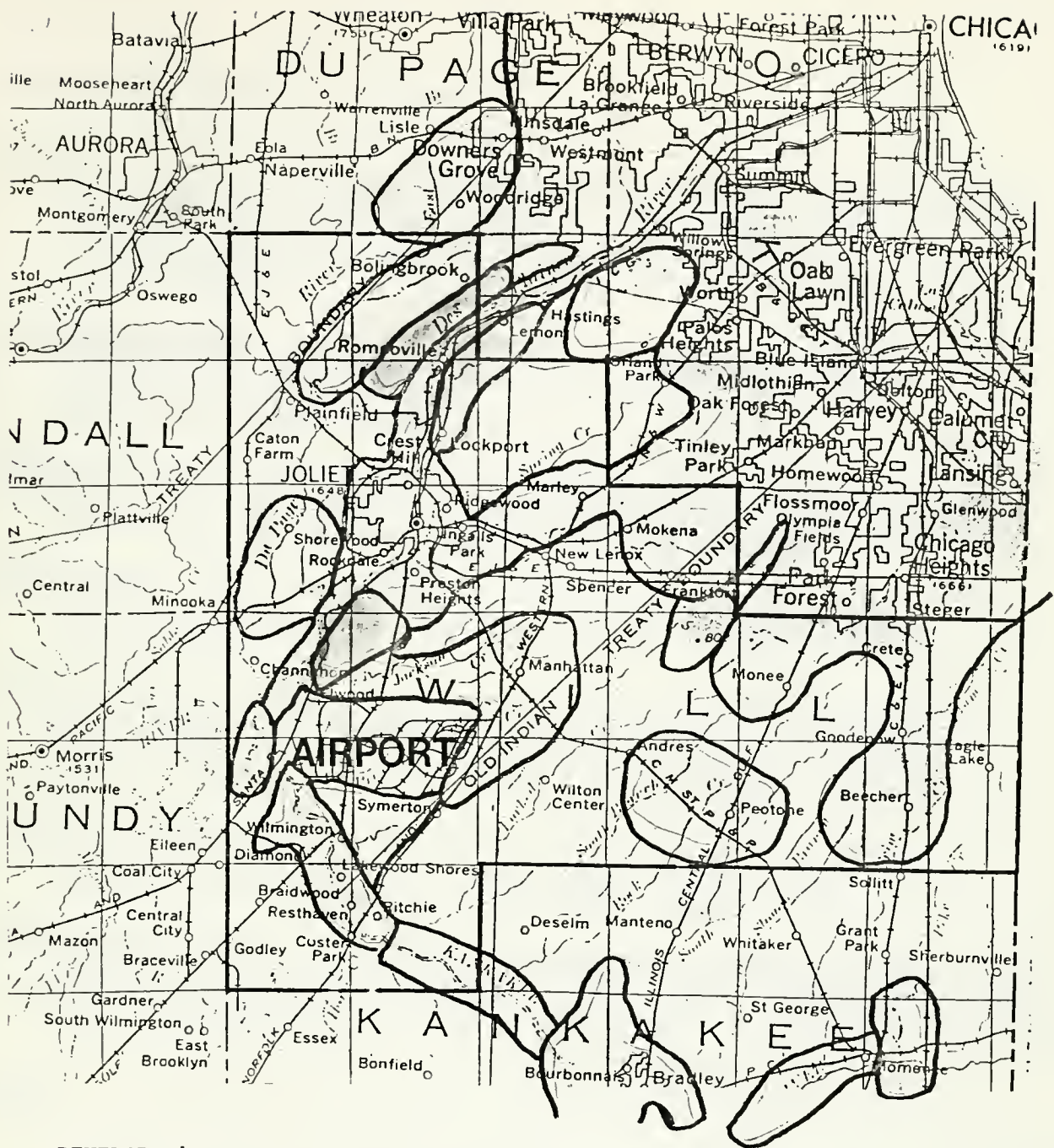
This view is taken by those who are primarily interested in developing housing in the Will County region and is depicted in the developers' map.

Realizing that Will County is expanding extremely fast in population, the need for development is ever increasing. There are three major areas which would be developed:

- (1) Near transportation corridors
- (2) Expansion outward of towns and cities
- (3) Aesthetically pleasing areas.

Taking these three points into consideration, the developer would seize opportunities for development. The map depicts the river corridors as developed primarily for housing as well as the expansion of the cities and towns. The major corridors into Cook County have also been developed.

If an airport is under consideration, the opportunities which it will create in development is very attractive to the developer. The Army ammunition property was chosen due to its proximity to Joliet and transportation routes.



DEVELOPER'S VIEW - Figure 8

AGRICULTURE



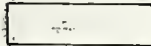
OPEN SPACE



RESIDENTIAL



INDUSTRY



BOOKS AND REPORTS (Land Use)

Northern Illinois Planning Commission--Suburban Factbook 1973.
published by NIPC, Chicago, 1973. 711.40973 c42n2
report on comprehensive census-noncensus data
for municipalities and unincorporated areas, county and
township data

A Comprehensive Plan For the Lake-Porter Region, Indiana
Prepared by Lake-Porter Regional Transportation and
Planning Commission 1970
(Existing Landuse data on Lake County Indiana)

Transportation Study for the Urbanizing Area of Kankakee County
711.7 L78t Prepared by H.W. Locnner, Incorporated Chicago
1967 (Existing Landuse Maps and future trends)

Northeastern Illinois Planning Commission-Regional Data
Center Bulletin 3/72 (General Landuse trends of NIPC
Planning Area)

Northeastern Illinois Planning Commission - Planning Papers
No.10 Sept. 1968 Revised Jan. 1972. Report on (Population,
Employment, and Landuse Forecasts for Counties and Town-
ships in Northeastern Illinois.) 711.43 M567

Kendall County Regional Planning Commission-- Comprehensive
County Plan for Kendall County 1965. 711.3 K33c
(land use tables and maps on Kendall County)

Northeastern Illinois Planning Commission-- A Regional Open Space
Plan for Northeastern Illinois, Dec. 1970. (objectives and
recommendations for developing open space in the NIPC planning
area.) 719.32 N813M

MAPS

United States Geological Survey, 7 1/2 min. quadrangle sheets
(1974 revised)

Northeastern Illinois Planning Commission, Land Use map Will
County 1964.

The Current and Projected
Economic Status
of
Will County, Illinois

Compiled by:

Steve Buttice
Mike Stahl
Tom Trayser

Oct. 1975

EMPLOYMENT

Northeastern Illinois traditionally has been a center of economic opportunity. The region's industrial diversity has made it nearly recession-proof. But northeastern Illinois, like all older centers in America, is at a disadvantage for economic growth compared to newer centers in the South and Southwest. The Northeastern Illinois Planning Commission's economic forecasts make the optimistic assumption that this disadvantage will disappear as all large metropolitan regions diversify economically, and therefore become more like each other. Full employment of this region's growing population would be possible if this occurs.¹

Within Northeastern Illinois, the most striking trend during the 1960's was the increasing proportion of employment in the suburban Cook County area. This generated inertia seems to continue through the 1980's (see table 1.4), but between 1990 and 2000 suburban Cook maintains a constant rather than increasing share of the total regional employment. This would seem to indicate both a lack of available land and a maturing capital structure in those townships bordering the city of Chicago.²

Chicago's share of regional employment in 1960 was 68.3%. After falling sharply for two decades, it slows down through 2000. This is constant with the assumption that the aging capital structure is gradually renewed. Manufacturing, for example, shows absolute gains in the 1980's and 90's³ (see table 1.6)

Will County's current unemployment rate of 11.2% is well above the national and state unemployment rates of 8.7% and 8.8% respectively. Since May of this year, the total employment in the county has increased by about 2,000 people - almost entirely in Industry. (see table 1.2)

The most spectacular growth has occurred in DuPage County, where total employment more than tripled and the share of regional employment more than doubled.(see table 1.3)

There has also been an increase of commuting across boundaries and the Chicago city line. The largest increase being away from the city.

Comparison of the employment and population results generated by NIPC shows that population is decentralizing faster than jobs. The City of Chicago and DuPage County become more of a place to work. Will County becomes more of a place to live. Suburban Cook stays much the same as today. None of those changes appear to be drastic; as in the past, the City is the only area displaying an employment/population ratio greater than the regional average⁴.(see table 1.4)

*All footnotes taken from NIPC Population / Employment Forecasts.

WILL COUNTY LABOR FORCE ANALYSIS

Total Population (Per 1970 Census)		249,500
(a) Male	50.2%	125,250
(b) Female	49.8%	124,250
Total White	92.8%	231,475
(a) Male	49.8%	115,350
(b) Female	50.2%	116,125
Total Minority	7.2%	18,025
a) Black	94.5%	17,025
b) Other (Includes Spanish Speaking)	5.5%	1,000
Labor Force Population*		171,233
1. Total White	94.8%	162,252
a) Male	49.3%	79,990
b) Female	50.7%	82,262
2. Total Minority	5.2%	8,981
a) Male	48.2%	4,330
b) Female	51.8%	4,651
3. Total Female (White & Minority)	50.8%	86,913
Labor Force (1974 Annual Average)		88,350
1. Total White	91.6%	80,925
a) Male (Estimated)	70.0%	56,650
b) Female (Estimated)	30.0%	24,275
2. Total Minority	8.4%	7,425
a) Male (Estimated)	70.0%	5,200
b) Female (Estimated)	30.0%	2,225
3. Total Female (White & Minority)	30.0%	26,500
Unemployment (1974 Annual Average)	5.6% of 88,350	4,950
1. White Unemployment	5.3% of 80,925	4,300
a) Male (Estimated)	4.5% of 56,650	2,550
b) Female (Estimated)	7.2% of 24,275	1,750
2. Minority Unemployment	8.8% of 7,425	650
a) Male (Estimated)	7.7% of 5,200	400
b) Female (Estimated)	11.2% of 2,225	250
3. Female Unemployment (Estimated)		
(White & Minority)	7.5% of 26,500	2,000

* 14-Years and Over - Per 1970 Census - Less inmates of Institutions.

Source: Bureau of Employment Security, Illinois State Employment Service

WILL COUNTY (as of 7-15-75)

<u>ITEM</u>	<u>7-75</u>	<u>5-75</u>	<u>7-74</u>
Work Force	92,100	88,475	90,750
Unemployment	10,350	9,300	6,275
Percent	11.2	10.5	6.9
Employment	69,175	67,100	71,225
Non-Agriculture	61,900	60,225	63,750
Manufacturing	22,150	20,700	22,775
Non-Manufacturing	39,750	39,525	40,975
All Other	5,700	5,300	5,900
Agriculture	1,575	1,575	1,575

Source: Bureau of Employment Security, Illinois State Employment Service

TOTAL EMPLOYMENT

	<u>1960</u>	<u>1970</u>	<u>1980</u>	<u>1990</u>	<u>2000</u>
Will County	*	82,500	111,700	129,100	149,700
DuPage County	*	145,300	211,400	261,500	341,000
Suburban Cook County	*	840,100	1,034,000	1,135,400	1,239,100
City of Chicago	*	1,857,300	1,905,900	1,980,100	2,056,100
Total Northeastern Illinois Region	2,746,500	3,183,000	3,609,300	3,905,000	4,262,600

* denotes unavailable

Source: Northeastern Illinois Planning Commission - Population/Employment
Forecasts

PERCENT SHARE OF REGIONAL EMPLOYMENT

	<u>1970</u>	<u>1980</u>	<u>1990</u>	<u>2000</u>
Will County	2.6	3.1	3.3	3.5
DuPage County	4.6	5.9	6.7	8.0
Suburban Cook County	26.4	28.6	29.1	29.1
City of Chicago	58.3	52.8	50.7	48.2
Total Northeastern Illinois Region	8.0	9.6	10.2	11.2

Source: Northeastern Illinois Planning Commission - Population/Employment Forecasts

EMPLOYMENT FORECASTS - TRADE

	<u>1970</u>	<u>1980</u>	<u>1990</u>	<u>2000</u>
Will County	13,500	19,800	21,900	23,800
DuPage County	40,400	55,200	62,700	81,500
Suburban Cook County	197,300	229,100	247,400	261,100
City of Chicago	366,200	368,700	375,000	385,000
Total Northeastern Illinois Region	663,400	737,900	779,500	833,400

Source: Northeast Illinois Planning Commission - Population/Employment Forecasts

EMPLOYMENT FORECASTS - MANUFACTURING

	<u>1970</u>	<u>1980</u>	<u>1990</u>	<u>2000</u>
Will County	28,100	30,000	30,500	33,200
DuPage County	28,500	33,400	36,500	41,800
Suburban Cook County	300,500	327,900	339,300	366,100
City of Chicago	499,000	478,000	491,000	504,000
Total Northeastern Illinois Region	948,100	970,400	1,001,100	1,059,200

Source: Northeastern Illinois Planning Commission - Population/Employment

Forecasts

EMPLOYMENT DATA FOR WILL AND SURROUNDING COUNTIES

	Non-Worker Worker Ratio	Percent in Labor Force		Male 18-24	Male 25&over	%	Employed Persons			% Working Outside Co.
		Female 16&over	Female Married				Unemployed	Blue Collar	White Collar	
Will	1.54	40.1	35.6	73.2	26.4	3.4	36.3	41.7	13.1	99.0
Cook	1.30	45.5	40.6	74.7	29.1	3.7	31.3	52.8	11.8	4.5
DuPage	1.37	43.3	38.0	75.9	30.8	2.1	28.7	64.0	9.7	48.1
Grundy	1.38	40.6	37.6	84.3	24.1	2.8	37.8	36.1	12.8	32.7
Kankakee	1.55	40.6	41.6	76.5	20.7	3.6	34.2	39.5	16.0	10.1
Kendall	1.32	46.2	45.1	86.3	37.6	1.7	43.3	41.8	10.2	45.3

Source: Illinois City and County Data Book, 1972.

TABLE 1.7

INCOME

Will County is a large influence on median family income in the Northeast region of Illinois. Currently second in this six county region, Will County in 1970, had an above average family of 11,929 dollars. In 1980, the median family income is projected to be well above average; 19,500 dollars. Will County in the years 1990-2000 is projected to become the leader of median family income in the Northeast region of Illinois. (see charts 2-1 & 2-2).

The high median income will stimulate the people of Will County to spend more money per year. These investments will reflect the amount of money available to spend on recreation equipment and on liesure time. Increasing availability of money and high income in the future will also require facilities for recreation and liesure time with in Will County.

INCOME FOR TOWNSHIPS

Monee, DuPage, Wheatland, Manhattan, and Troy have the highest incomes. Wilmington, Cluster/Wesley, and Washington have the lowest incomes. In general the Northeast townships, bordered by Cook County have the greatest incomes. Troy and the Northeastern townships have the greatest potential to spend money on recreation equipment and on liesure time. The Southern border of the county, Reed, Cluster Wesley, Wilton, Peotone, Will, Washington, have the least available money for liesure time activity.

The future indicates the townships will remain in the same order, only Joliet falling, in rank of income.

Introduction

The purpose of this study is to investigate the effects of the proposed system on the performance of the system. The study is divided into two main parts: a theoretical analysis and an experimental evaluation.

The theoretical analysis is based on the principles of the system and the assumptions made in the design. The experimental evaluation is based on the results of the experiments conducted on the system.

The results of the experiments show that the proposed system has a significant effect on the performance of the system. The results are discussed in detail in the following sections.

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INCOME FOR CITIES

In general the Northeastern cities in the county have the highest incomes. Romeoville, New Lenox, Lockport, and Wilmington (in southern section of the county) have the highest median family incomes. By the 1980's Park Forest South, Monee, Frankfort, and Mokena will join Romeoville, New Lenox, Lockport, and Wilmington to lead the county in highest median family income. The people of these cities have the potential to invest a substantial amount of money in recreation equipment and liesure time. (see chart 2-3;2-4)

MEMORANDUM

TO : Mr. [Name]
FROM : Mr. [Name]
SUBJECT: [Topic]

[The following text is extremely faint and largely illegible. It appears to be a memorandum detailing a meeting or discussion, possibly involving the [Topic] mentioned in the subject line. The text is organized into paragraphs and may include a list of items or a summary of points discussed.]

FAMILY INCOME PER COUNTY 2-1

County	1960 pop.	1960 Mean Income	1970 Mean Income	1980 Mean Income	Rank
DuPage	78,360	8,580	14,457	22,000	1
Will	59,340	6,371	11,929	19,500	2
Peoria	51,780	6,171	11,927	18,000	3
Cook	1,314,484	7,281	11,639	17,800	4
Grundy	520	5,868	10,982	17,000	5
Kankakee	20,518	5,973	10,441	17,000	6

Source ; U.S. Census- County and City Data Book. 1962' & 1972.
1980 income projections based on 9% inflation
and future characteristics.

FAMILY INCOME CHARACTERISTICS 2-2

	Low Income %					Moderate Income %					Middle Income %					High Income %					
	60	70	80	90	2000	60	70	80	90	2000	60	70	80	90	2000	60	70	80	90	2000	
Cook	11	12	16	18	18	13	13	15	15	15	33	33	33	32	31	31	27	23	25	26	25
Will	22	16	14	14	15	20	19	17	15	15	34	37	37	36	36	33	24	28	33	35	37

Source: Population and Employment Forecasts. May 1974 page 11.

SOCIAL, ECONOMIC AND HOUSING CHARACTERISTICS 2-3

Will County

City	Median Family Income	Total Housing Units	Median No. Of Rooms	Owner Occupied	Median Value	Rank Income
Romeoville	12,565	2,899	5.2	2,632	18,900	1
New Lenox	12,170	1,240	5.3	666	20,100	2
Wilmington	12,119	1,453	4.9	945	15,900	3
Bolingbrook	12,070	1,727	6.2	1,586	21,300	4
Lockport	12,039	2,938	5.0	2,008	19,700	5
Plainfield	11,912	4,213	5.2	2,632	18,900	6
Joliet Urbanized Area	11,619	60,693	5.0	31,833	17,900	7
Crest Hill	11,611	3,220	4.5	2,456	16,200	8
Plainfield	11,912	1,292	5.2	609	21,800	9
Joliet	11,233	31,459	4.9	15,728	17,700	10

Source: Census of Population. 1970

Census of Housing. 1970

Compiled by: Joliet Region Chamber of Commerce.

HOUSING

Will County presently ranks forth in housing cost out of the Northeast region of Illinois. In this six county region DuPage is first with Cook County has the second highest priced housing unit at 24,511, compared to Will County 18,802. This is significant because of the movement of upper-class people from city to the suburbs. Therefore since Will County borders Cook County many upper class people will move into Will County. This will result in higher housing demands. (see chart 2-4, 2-3)

Will County is presently rated forth in rent with 27.2% of its housing units rented. Again Will County is average in the region. People in rented units are more mobile than the people of owner occupied units. These people also tend to be young and possibly more unstable in employment. Therefore youthful moderate income people will live in rental units. (see chart 2-4)

Vacancy rate leaves Will County again average reflecting upon housing unit costs and area desirable. (see chart 2-4)

TOWNSHIP HOUSING

Housing units forecasts indicate DuPage, Monee, Wheatland, Lockport, New Lenox, Frankfort, and Troy to be the fastest growing. Land in these areas if desired should be purchased soon because of the great amount of home building to take place between 1970 - 1990. Recreation for the people coming to this area should be considered soon. (see chart 2-3, 2-5, 2-6, 2-7, 2-8, 2-9)

Housing unit costs sight Wheatland, Troy, Wilton, and Homer as the highest priced areas. Joliet, Plainfield, Florence, Cluster/Wesley, Reed, and Wilmington as the lowest. The highly priced areas

best housing regions on the most desireable land. Troy, and Homer to increase 75-100 percent by 1980. DuPage will increase over 100 percent. The percentage of units in these townships are small indicating a high number of owner occupied single family homes.

Florence and Will Townships have over 40 percent rented housing, indicating a mobile township. DuPage, Homer, Frankport, and Monee, on the other hand have a low percentage of rental housing. These townships border Cook County and may be due to commuters buying single family homes. Rental units may not have a yard as does the single family unit. (see chart 2-10 & 2-3, 2-4, 2-5 2-6; 2-7; 2-8; 2-9.)

CITY HOUSING

Joliet leads all the other cities of Will County in number of housing units. Park Forest South, Bolingbrook, New Lenox are building rapidly. If land is desired in these areas it should be purchased soon. (see chart 2-3 & 2-10)

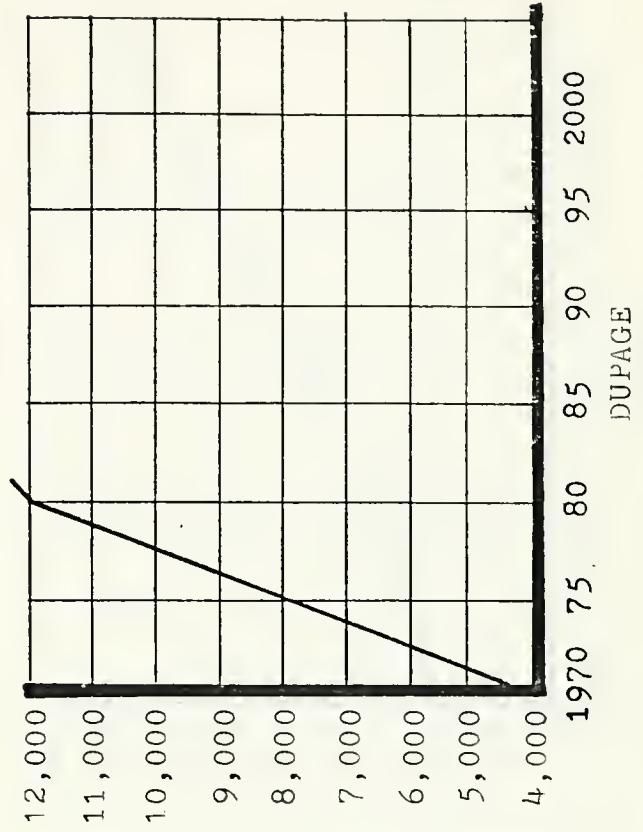
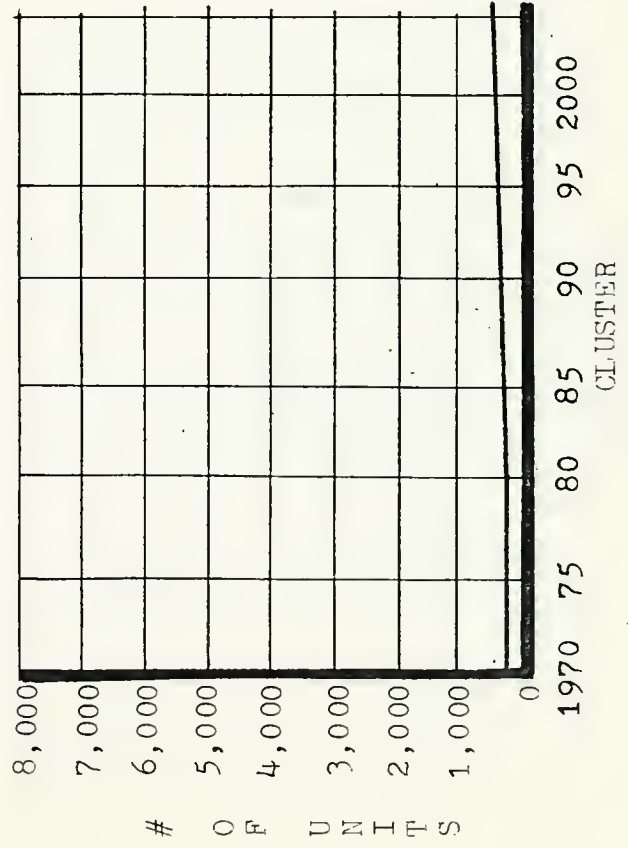
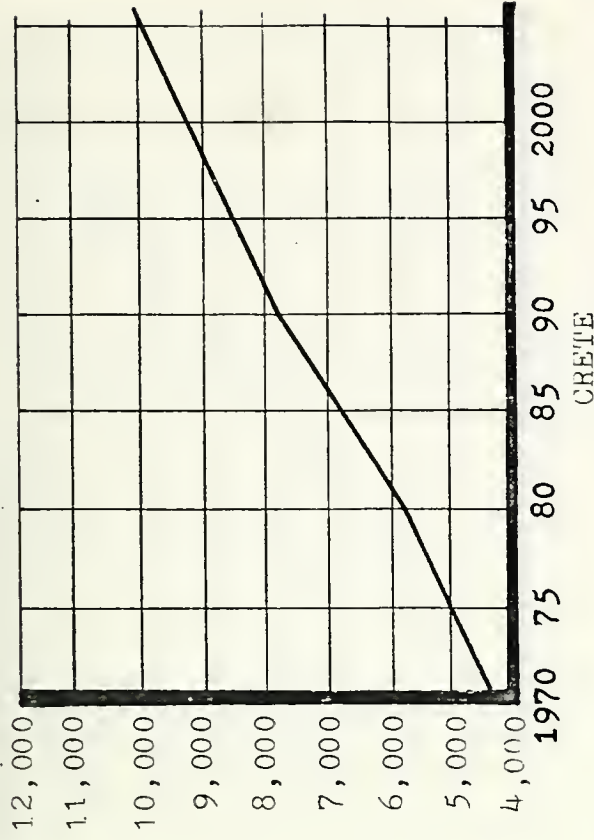
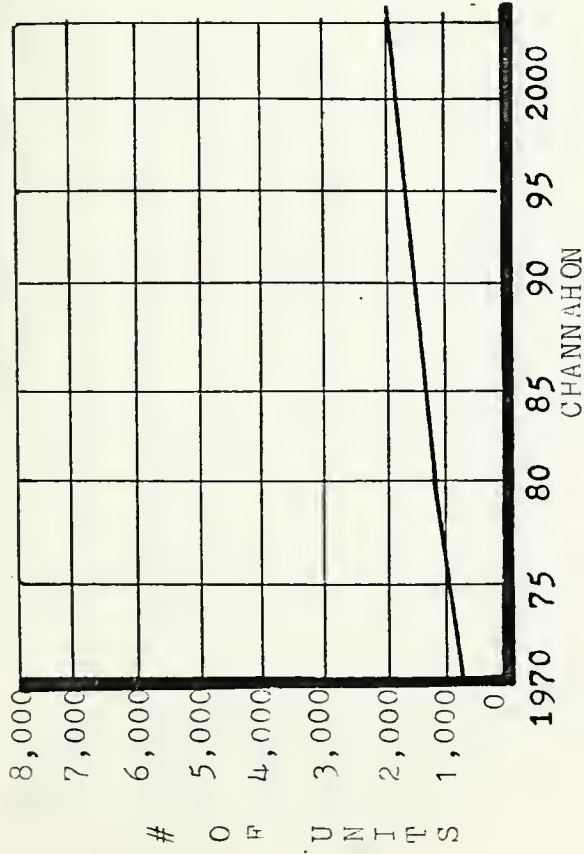
Bolingbrook is building owner occupied, expensive, single family, "suburb" units. Lockport and Crest Hill are growing moderately with much rental unit development. Open space for youthful and moderately income people should be accessible by rental districts.

HOUSING PER COUNTY 2-4-

	Total	Persons/ unit	owner occupied	mean single family	change 60-70	one unit structures	vacancy rate home rent	rent mean
1 DuPage	136,251	3.6	79.5%	28,454	62.4	81.0	1.1 14.4	182
2 Cook	1,765,066	3.1	48.0%	24,511	10.8	39.2	.7 6.4	128
3 Kendall	7,485	3.5	74.3%	21,703	46.9	88.1	.5 3.6	137
4 Will	70,688	3.5	72.8%	18,802	30.9	76.8	1.0 6.2	126
5 Grundy	8,317	3.1	68.0	17,081	22.4	79.8	.6 5.9	126
6 Kankakee	27,942	3.4	69.1	16,535	46.4	75.1	1.1 6.7	120

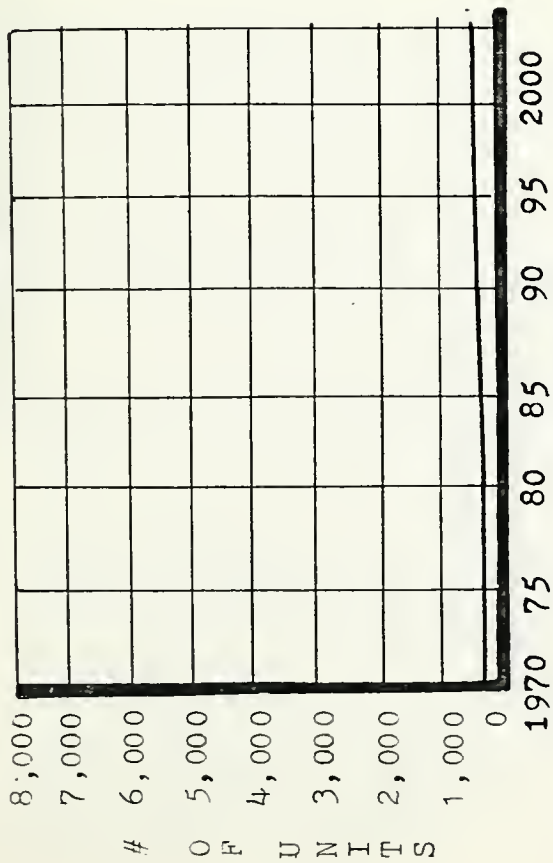
Source: U.S. County and City Data Book 72. & 62

WILL CO. TOWNSHIP HOUSING UNIT FORECASTS 2-5

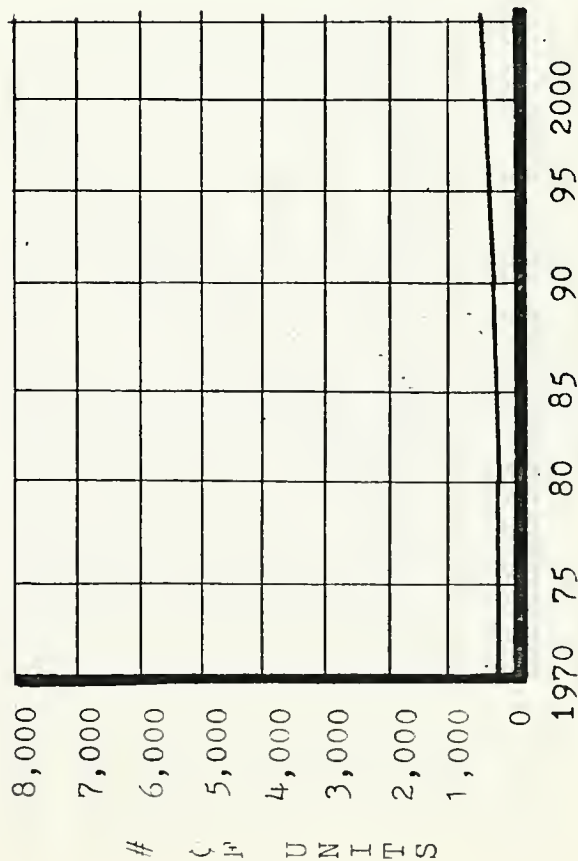




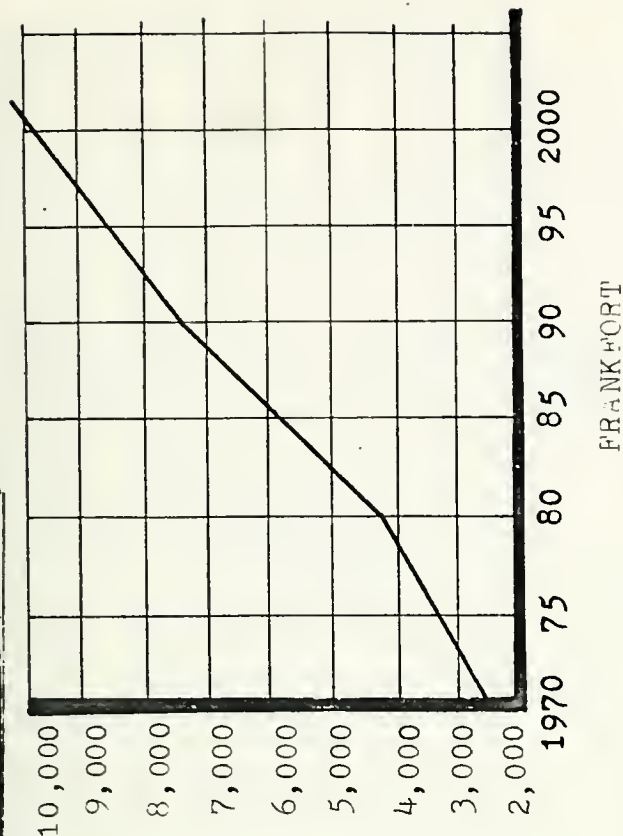
WILL CO. TOWNSHIP HOUSING UNIT FORECASTS 2-5



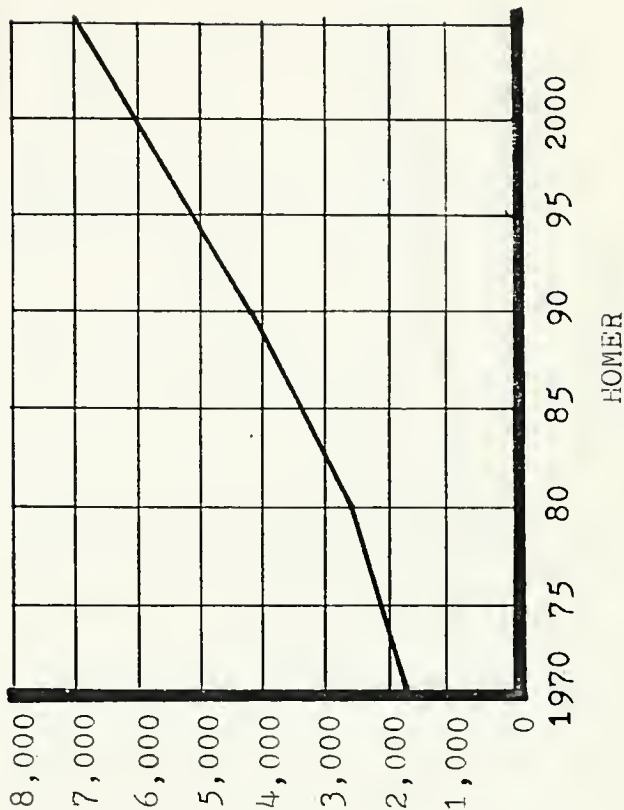
FLORENCE



GREEN GARDEN



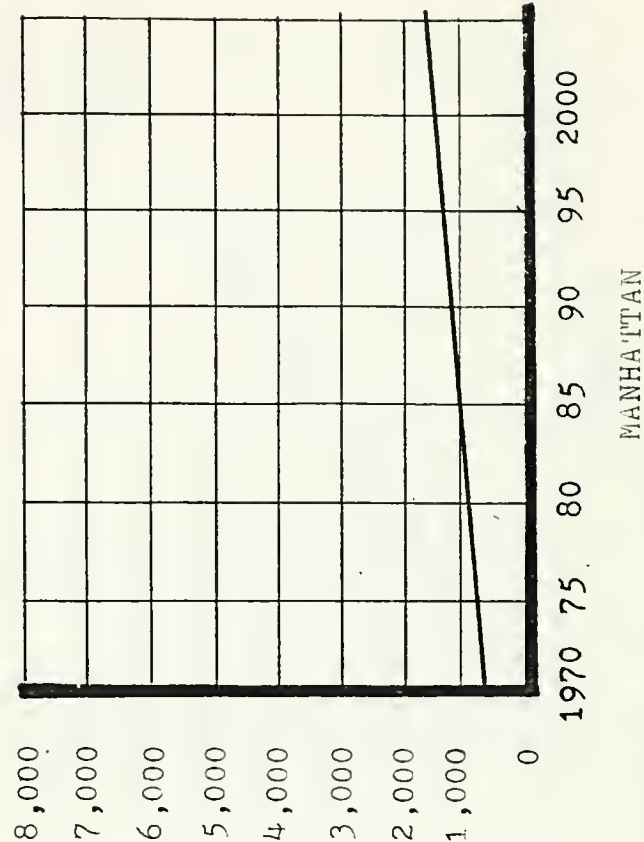
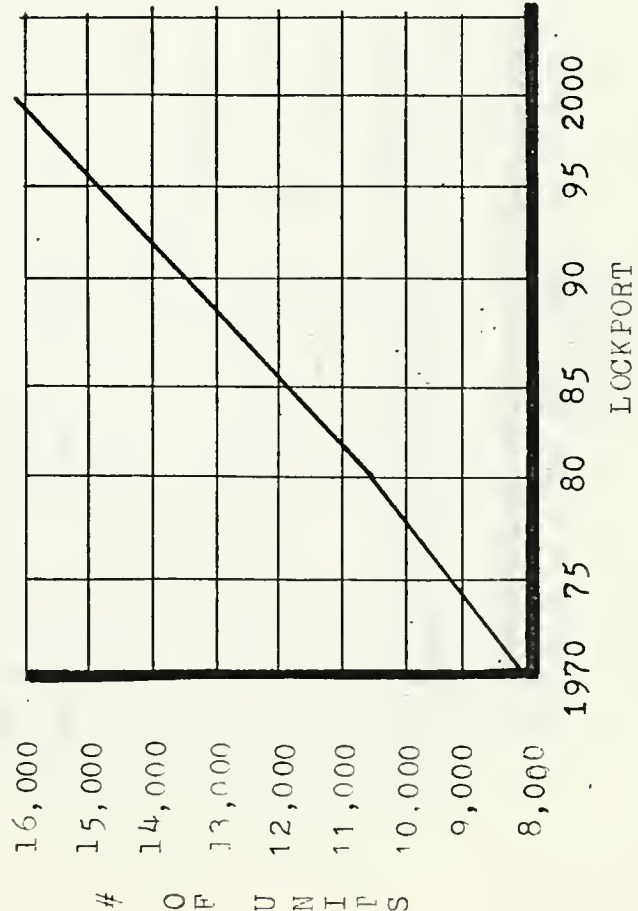
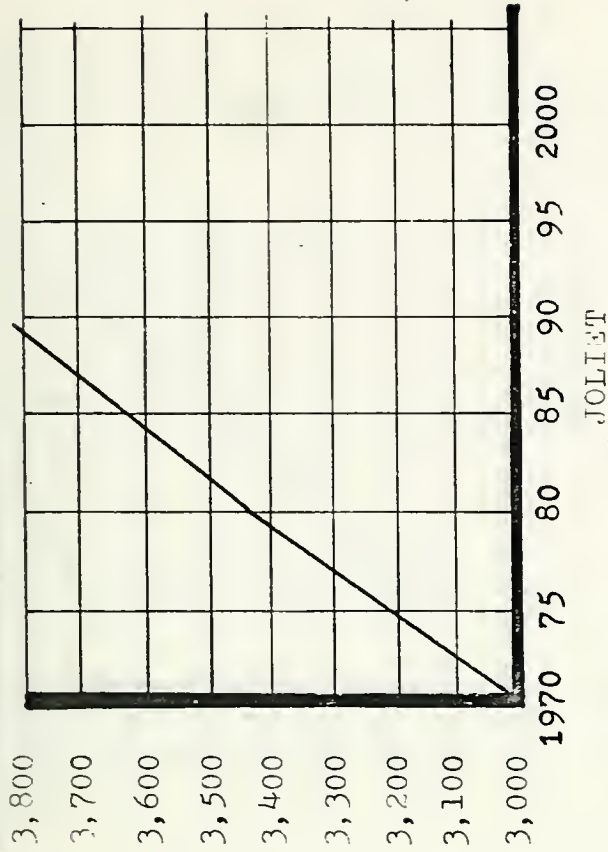
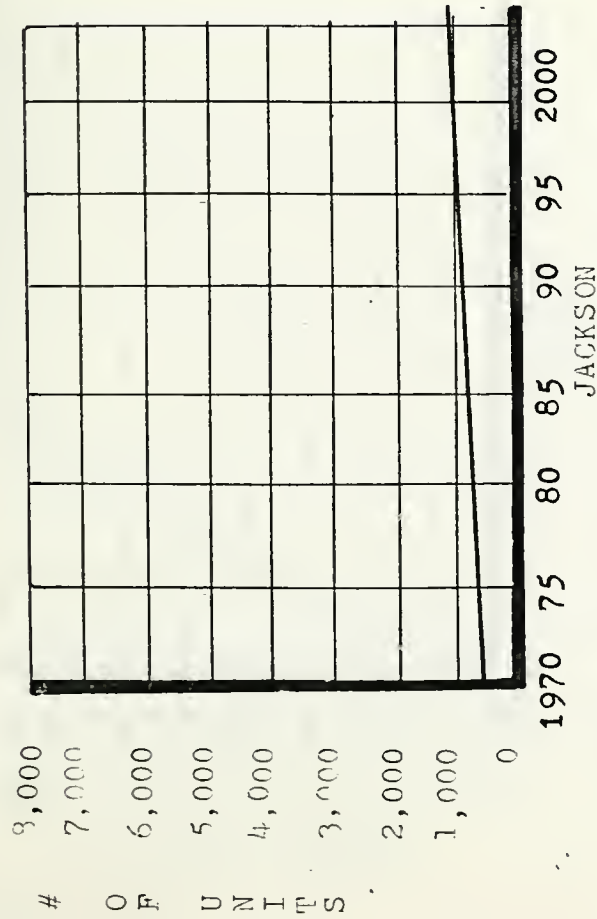
FRANKFORT



HOMER



WILL CO. TOWNSHIP HOUSING UNIT FORECASTS 2-5





Graph 1: $y = 3$ and $x = 4$



Graph 2: Line passing through $(0, 2)$ and $(4, 0)$

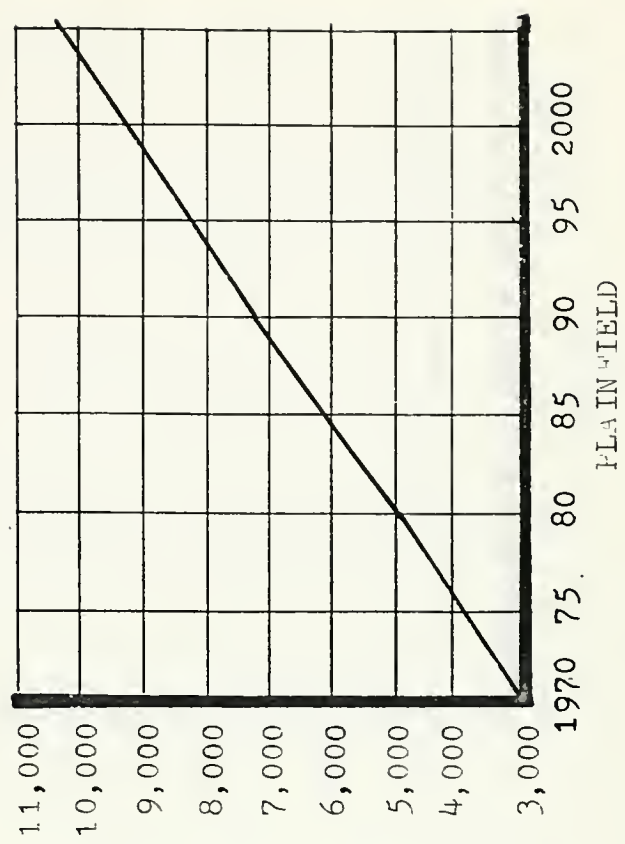
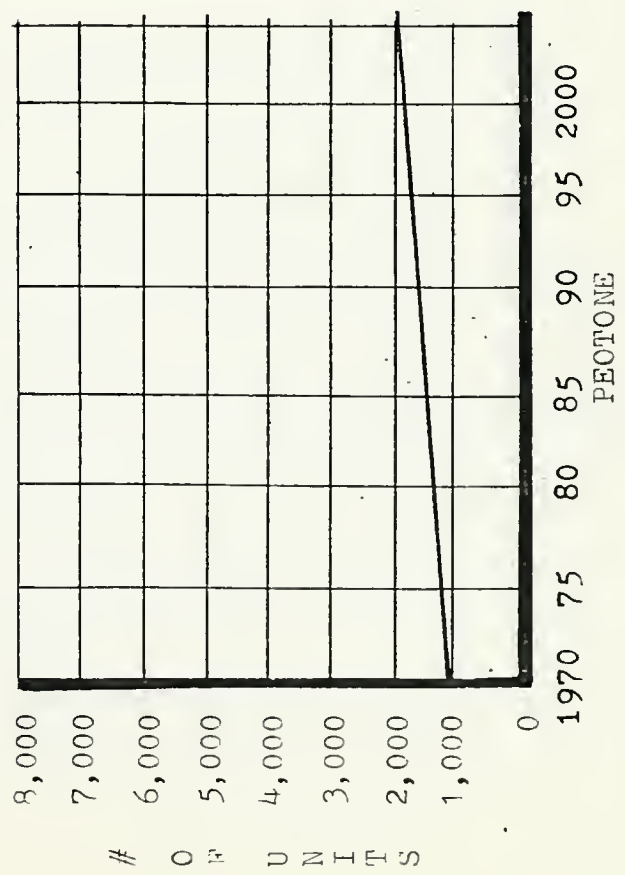
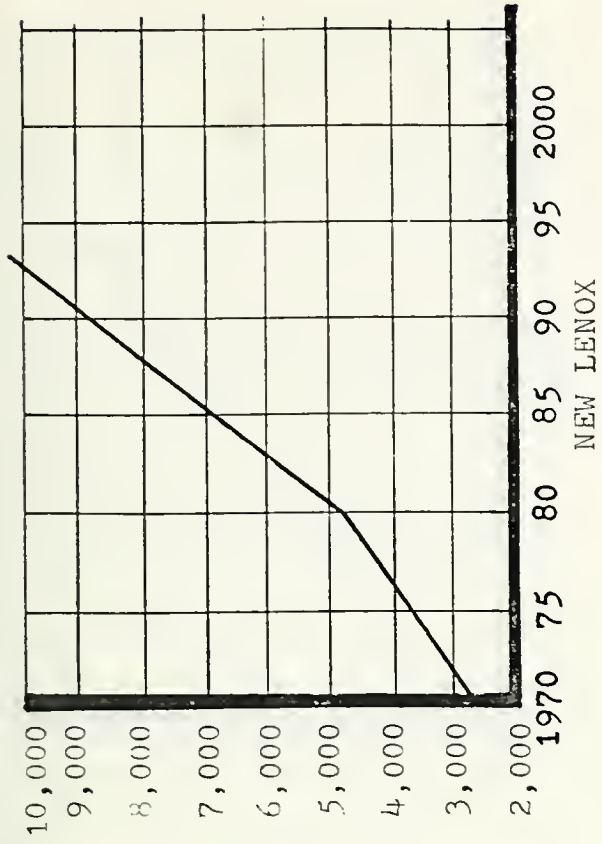
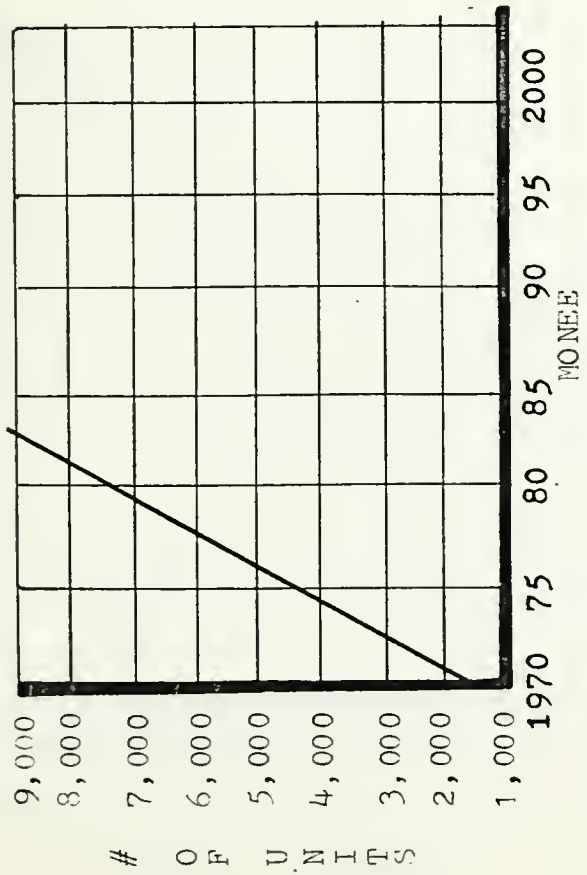


Graph 3: Line passing through $(0, -2)$ and $(4, 0)$



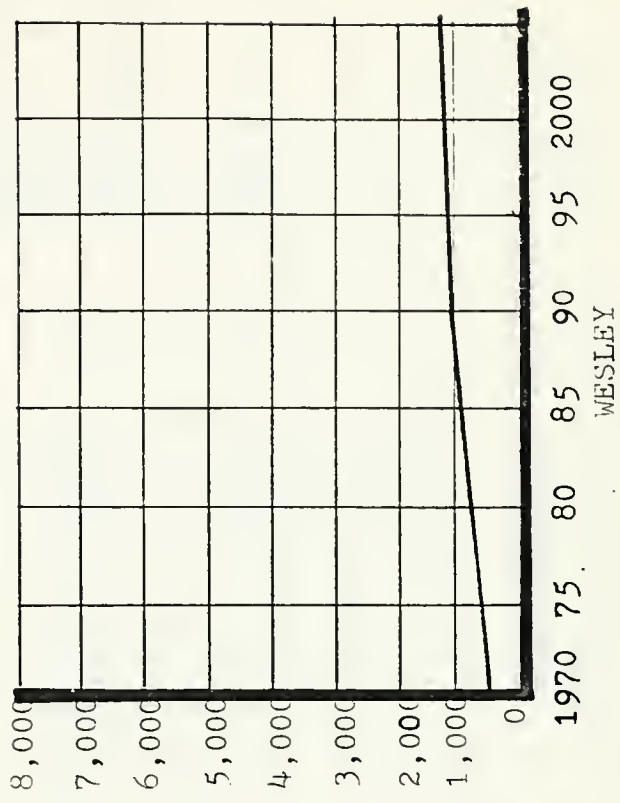
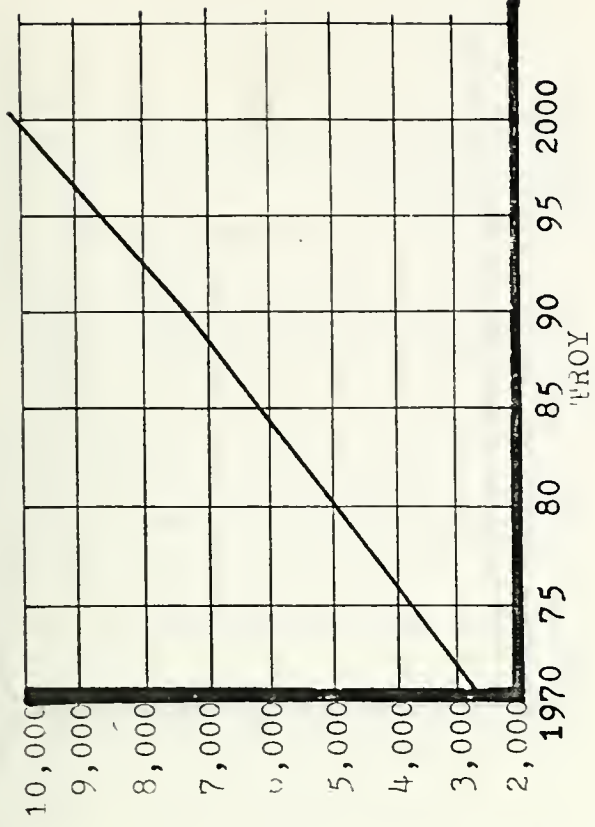
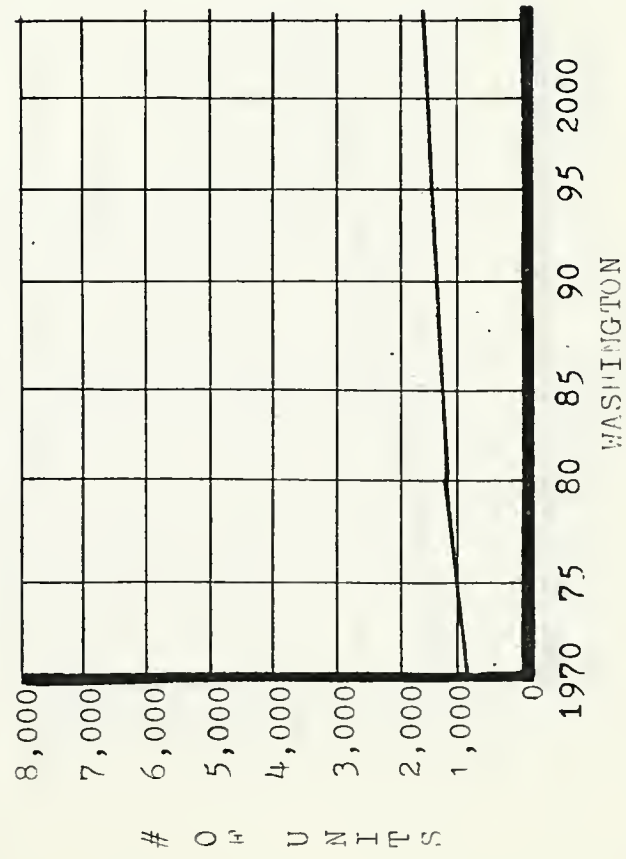
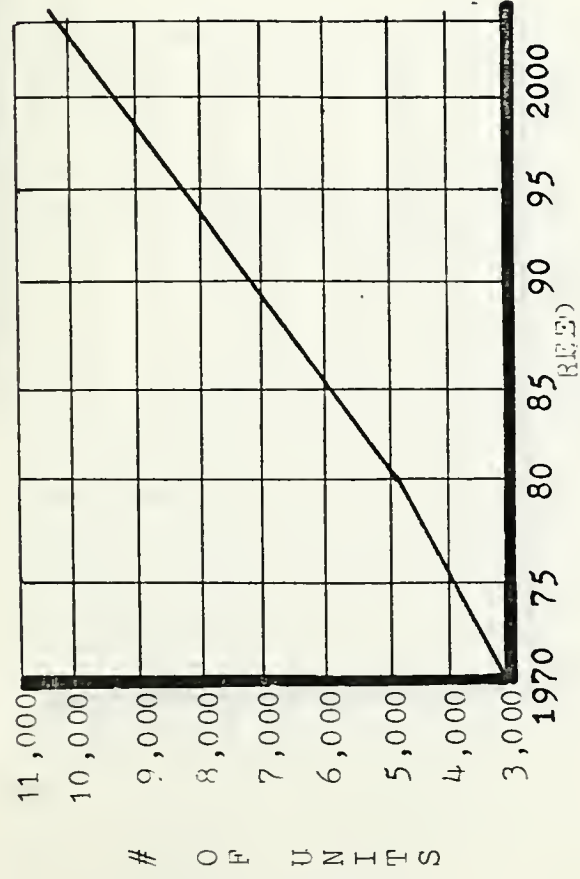
Graph 4: Line passing through $(0, 4)$ and $(4, 0)$

WILL CO. TOWNSHIP HOUSING UNIT FORECASTS 2-5





WILL CO. TOWNSHIP HOUSING UNIT FORECASTS 2-5

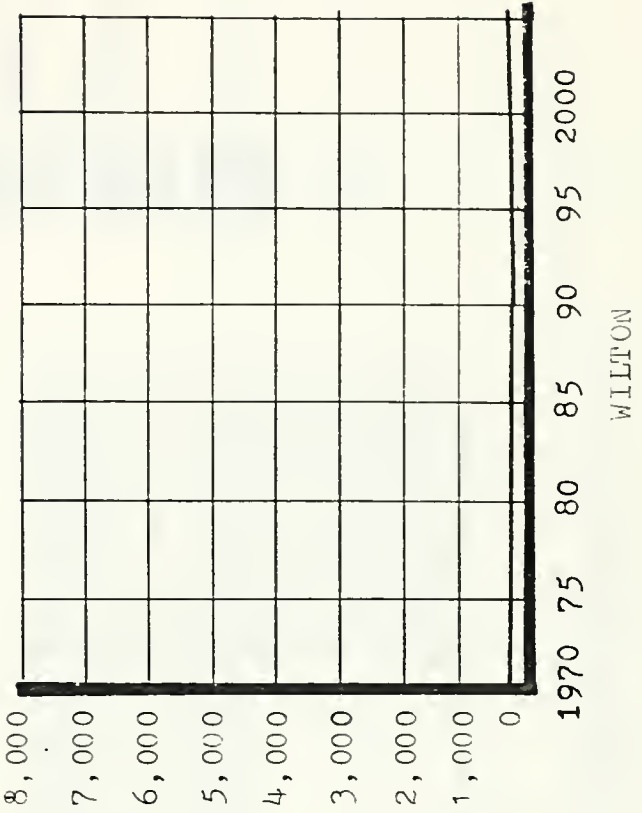
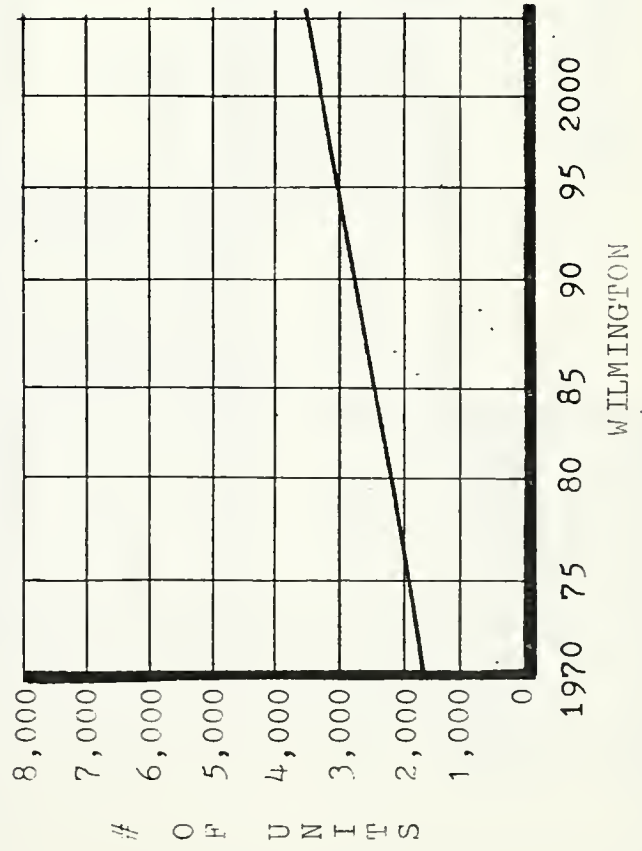
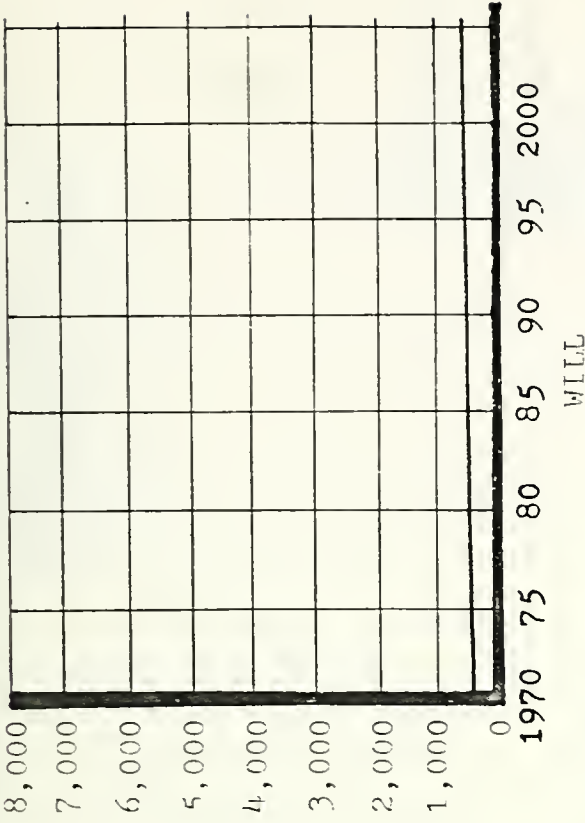
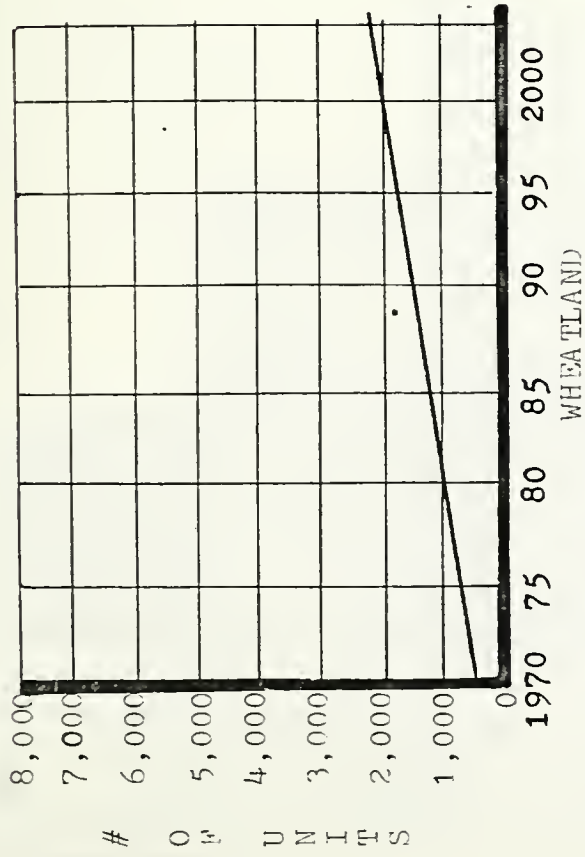


Sources: Initial Housing Study-Will Co 72

N.I.P.C. Population & Employment Forecasts. 74

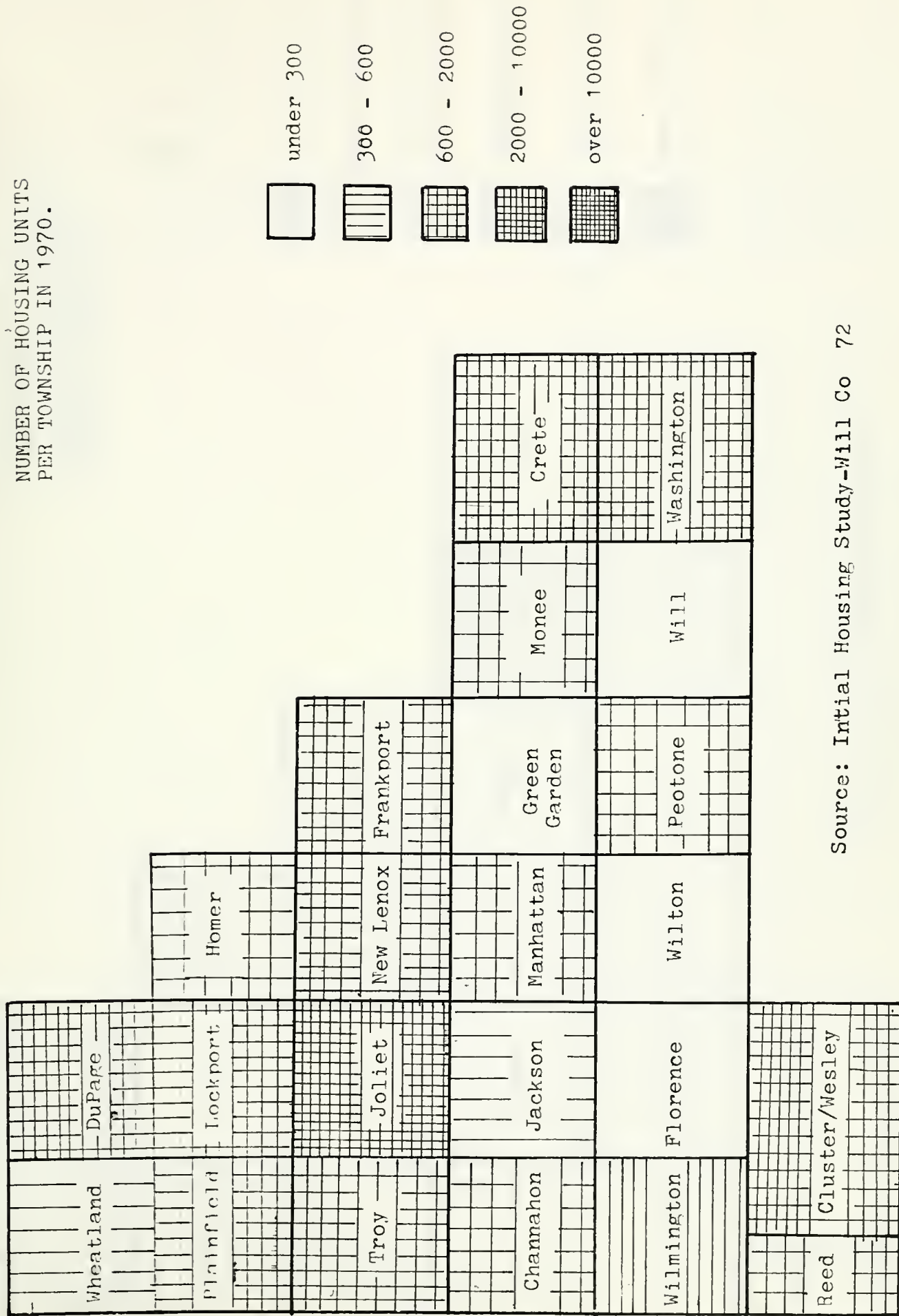


WILL CO. TOWNSHIP HOUSING UNIT FORECASTS 2-5



WILL COUNTY, ILLINOIS 2-6

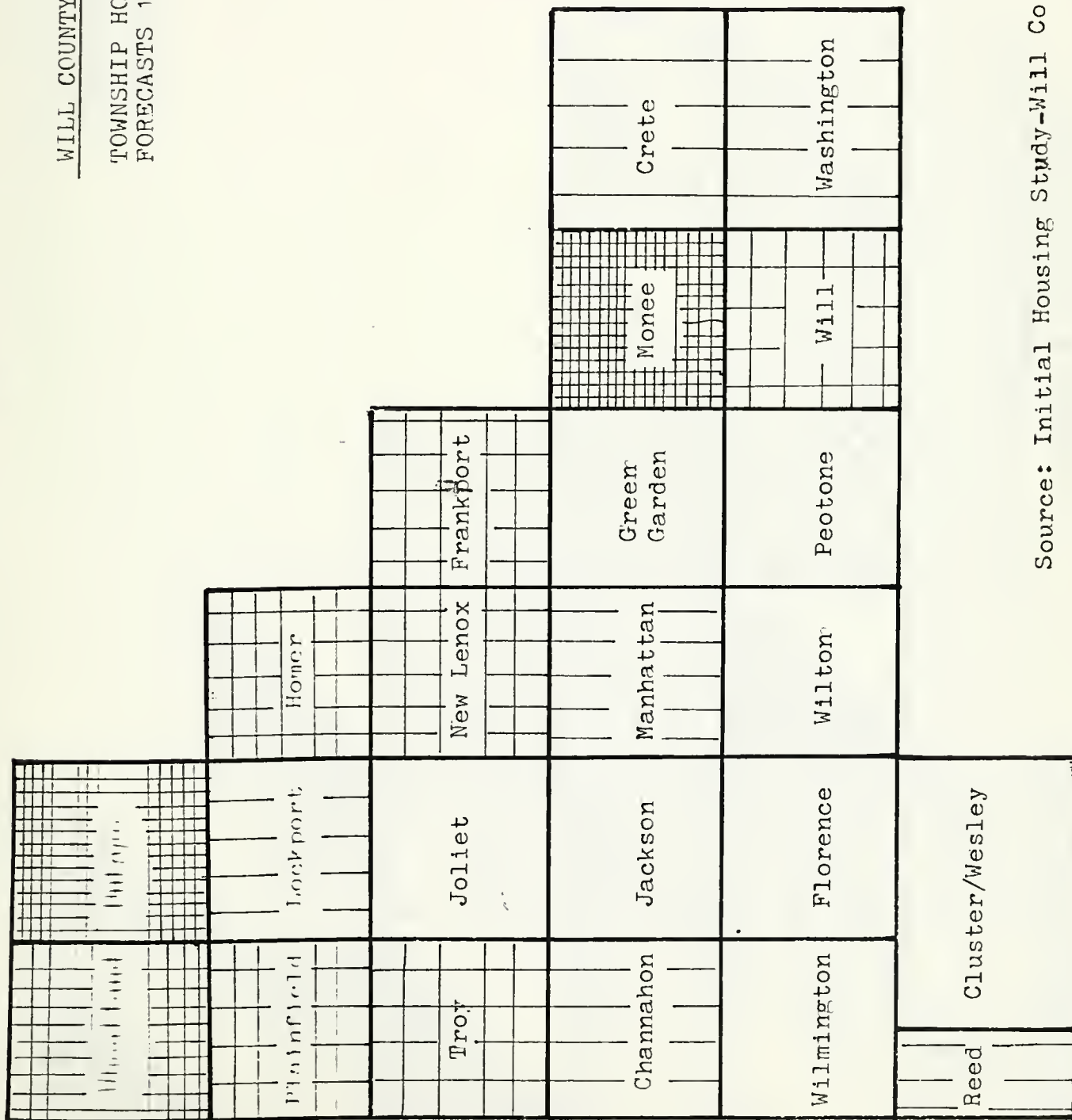
NUMBER OF HOUSING UNITS
PER TOWNSHIP IN 1970.



Source: Intial Housing Study-Will Co 72

WILL COUNTY, ILLINOIS 2-7

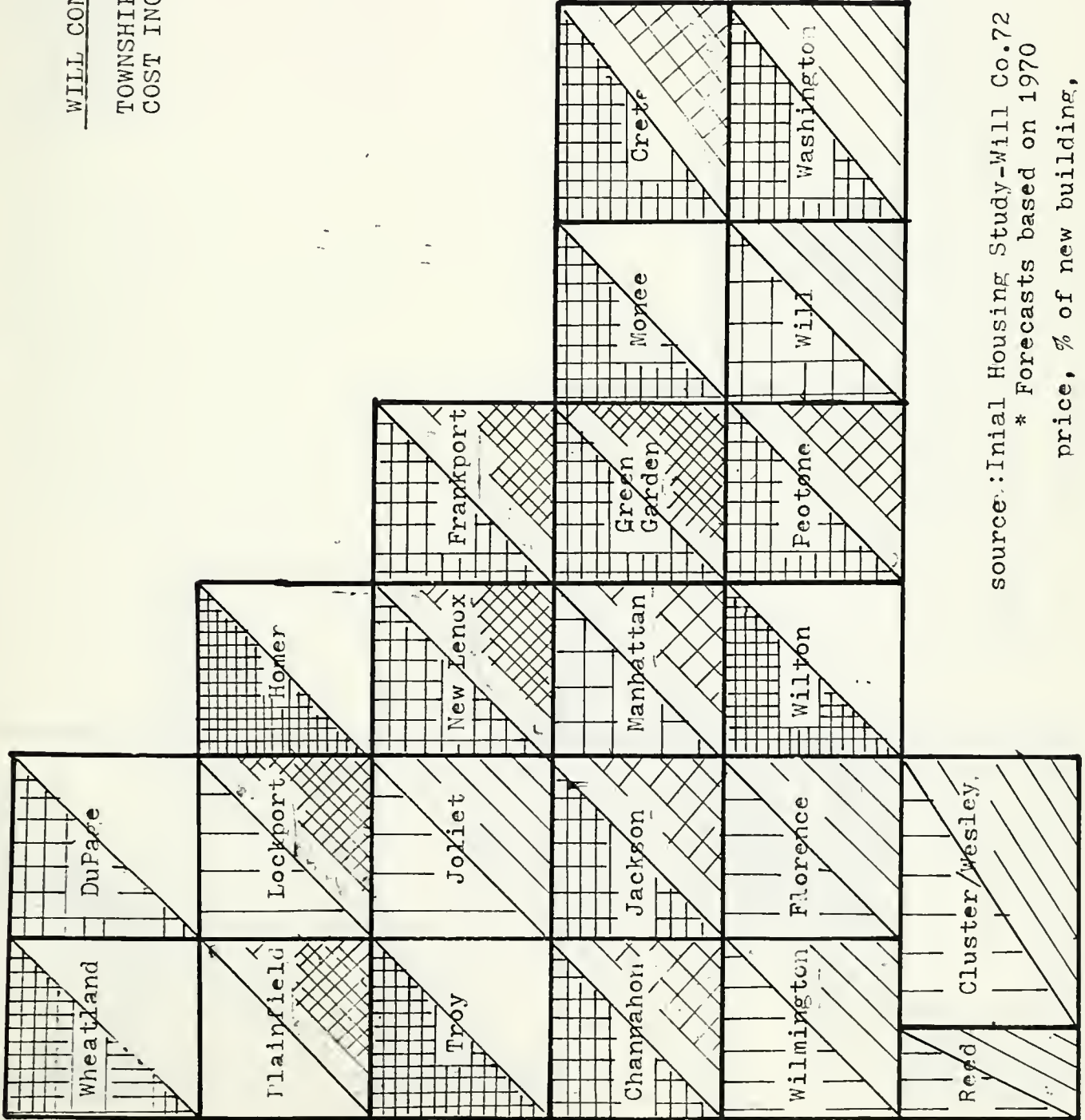
TOWNSHIP HOUSING UNIT
FORECASTS 1970-1980.



Source: Initial Housing Study-Will Co. 72

WILL COUNTY, ILLINOIS 2-8

TOWNSHIP HOUSING UNIT
COST INCREASE 1970-1980.

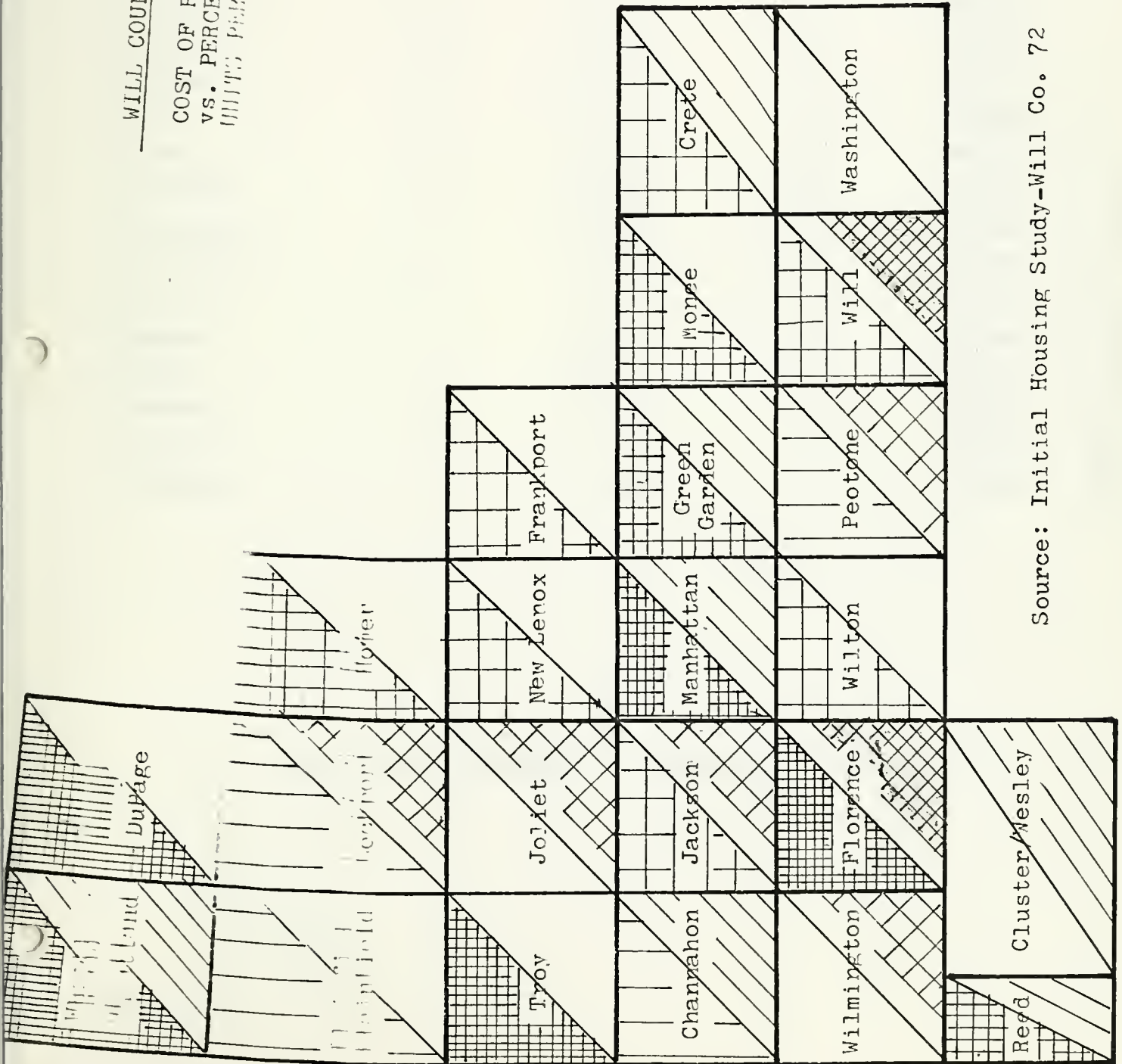
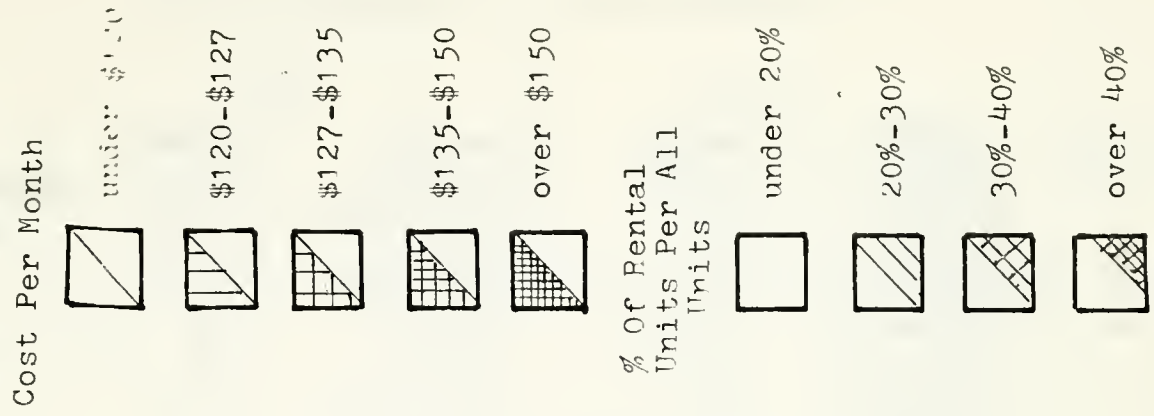


Housing Units
Cost Forecast *

source: Inial Housing Study-Will Co.72
* Forecasts based on 1970
price, % of new building,
and 10% inflation per year.

WILL COUNTY, ILLINOIS 2-9

COST OF RENTAL UNITS
VS. PERCENT OF RENTAL
UNIT'S PER TENSHIP



Source: Initial Housing Study-Will Co. 72

CITY-HOME BUILDING IN WILL COUNTY 2-10

<u>City</u>	1971		1972		<u>Rank</u>
	<u>Number</u>	<u>Value</u>	<u>Number</u>	<u>Value</u>	
Park Forest S.	137	1,970,720	420	7,162,300	1
Bolingbrook	2,172	39,214,582	134	290,237	2
Joliet	111	2,978,393	117	4,365,400	3
New Lenox	28	630,500	104	2,424,500	4
Frankfort	66	2,723,430	96	2,856,980	5
Shorewood	82	2,127,170	87	2,364,200	6
Romeoville	11	239,450	85	1,632,756	7
Channahon	35	616,000	63	103,450	8
Steger	85	1,212,000	35	595,700	9
Crest Hill	24	542,300	32	774,875	10
Crete	17	391,000	30	740,559	11
Lockport	26	629,800	28	755,700	12
Manhattan	17	370,600	21	500,000	13
Wilmington	11	242,340	21	468,500	14
Beecher	n/a	n/a	20	581,600	15
Mokena	6	127,000	12	350,400	16
Monee	12	240,000	11	231,000	17
Peotone	13	315,000	8	200,000	18
Elwood	0	--	3	60,000	19
Rockdale	2	36,000	2	26,500	20

Source: Joliet Chamber of Commerce.

COMMERCE

Commerce and retail sales follows the trend set by the other economic statistics. Joliet and Crest Hill, a suburb of Joliet, are the top cities of Will County in retail sales with Bolingbrook third. (see chart 2-11)

COMPARATIVE RETAIL SALES 2-11

<u>CITY</u>	<u>RANK</u>	<u>1974</u>	<u>1973</u>
Joliet	1	333,870,875	300,475,650
Crest Hill	2	40,646,250	42,642,800
Bolingbrook	3	33,870,875	23,427,275
Lockport	4	27,252,300	21,675,825
Romeoville	5	21,776,100	15,836,450
Frankport	6	21,378,825	19,825,250
Wilmington	7	18,298,525	18,725,550
New Lenox	8	17,127,375	14,740,050
Plainfield	9	12,377,075	11,133,675
Mokena	10	9,065,125	7,743,825
Shorewood	11	5,888,400	3,873,925
Manhattan	12	4,271,125	3,865,250
Rockdale	13	3,413,450	2,653,900

Source: Department of Revenue State of Illinois
Joliet Region Chamber of Commerce.

TAX RATES AND PROPERTY VALUES

The tax rates and property values of a given area can do much to give an indication as to the economic conditions and trends within an area, especially when viewed in relation to surrounding regions. (see table 3-1) The chart displaying the various municipalities within Will County compares these typical tax rates. It indicates that cities nearest the Chicago area and Joliet area generally have the highest tax rates and percent increases during the years 1971-1972. Another local reflecting these trends occurs around the Crete Township area, especially the northern part. These trends also hold true for the townships as a whole. (see table 3-3)

The assessed values of property (see table 3-2) shows that property within Will County in general has been increasing, although it has been generally decreasing around the Joliet Township area. (This trend may or may not hold true for years since 1972.)

LOCAL GOVERNMENT FINANCES

Local government revenues and expenditures are strong indications to the economic situations in an area. (see table 3-4) Table gives a regional comparison of the counties surrounding Will County in regard to government finances. The chart is based on 1967 statistics which are old, but still may give some insights to future trends. Basically it shows that property taxes are higher near the Chicago area, and so is general revenue. However, government spending and debt outstanding are also higher nearer Chicago, and there is cause to believe these figures will continue to rise.

TYPICAL TAX RATES

1971-1972

(Per \$100 of Equalized Assessed Valuation)

TABLE 3-1

<u>WILL COUNTY</u>	<u>1972</u>	<u>1971</u>	<u>% Increase</u>
Beecher	\$4.6821	\$4.3347	8.0%
Bolingbrook	7.0381	6.0714	15.9
Braidwood	5.3048	4.8748	8.8
Channahon	4.4132	4.1591	6.1
Crest Hill	6.1266	5.8697	4.4
Crete	7.0608	6.1179	15.4
Elwood	5.2384	4.9568	5.7
Frankfort	6.4091	6.1374	4.4
Godley	4.9228	4.5628	7.9
Joliet	6.4556	6.2289	3.6
Lockport	6.7835	6.4237	5.6
Manhattan	6.0305	6.0121	.3
Mokena	6.5883	6.6830	-1.5
Monee	6.6007	5.6437	17.0
New Lenox	6.6666	6.6291	.6
Park Forest	6.9355	6.0230	15.2
Park Forest So.	6.0663	5.1267	18.3
Peotone	4.1587	3.9444	5.4
Plainfield	5.9478	5.2266	13.8
Rockdale	4.5859	3.5715	28.4
Romeoville	6.9127	5.9221	16.7
Shorewood	5.4931	5.0453	8.9
Steger	6.7056	6.4992	3.2
Symerton	4.0158	3.7703	6.5
Wilmington	5.0859	4.5793	11.1

*Source; Joliet Region Chamber of Commerce Fact Book.

ASSESSED VALUE OF PROPERTY

TABLE 3-2

<u>Year</u>	<u>Joliet</u>	<u>%Increase</u>	<u>Joliet Township</u>	<u>%Increase</u>	<u>Will County</u>	<u>%Increase</u>
1968	\$236,773,643		\$367,561,794		\$978,156,286	
1969	238,252,497	.6%	361,400,015	-1.7%	997,856,124	2.0%
1970	239,031,932	.3	358,032,179	.9	1,044,229,179	4.7
1971	256,580,330	7.3	377,234,627	5.4	1,174,222,481	12.5
1972	250,762,349	-2.3	372,561,530	-1.2	1,221,095,920	4.0

*Source; County Clerk, Will Co. (Joliet Region Chamber of Commerce)

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TABLE 3-3

WILL COUNTY, ILLINOIS

RANKING OF 1972 EQUALIZED ASSESSED VALUATIONS
BY TOWNSHIPS

WHEAT- LAND 16 16,118,684	DUPAGE 3 163,499,427				
PLAIN- FIELD 7 50,325,505	LOCKPORT 2 164,499,113	HOMER 11 29,814,971			
TROY 6 56,810,947	JOLIET 1 372,561,530	NEW LENOX 8 41,060,078	FRANKFORT 5 56,822,390		
CHANNAHON 10 32,941,598	JACKSON 18 9,848,675	MANHATTAN 15 16,757,211	GREEN GARDEN 21 8,661,114	MONEE 9 39,761,025	CRETE 4 59,049,068
WILMING- TON 12 20,305,699	FLORENCE 25 5,019,193	WILTON 22 8,266,407	PEOTONE 13 18,147,905	WILL 20 8,846,885	WASHINGTON 14 16,826,236
REED 17 10,100,010	WESLEY 19 9,476,364				

CLUSTER 24th

5,575,885

*Source; JOLIET REGIONAL CHAMBER OF COMMERCE FACT BOOK.

BREAKDOWN OF 1972 EQUALIZED ASSESSED VALUATIONS BY TOWNSHIP
WILL COUNTY, ILLINOIS

TABLE 3.3a

<u>TOWNSHIP</u>	<u>LAND</u>	<u>LOTS</u>	<u>PERSONAL</u>	<u>RAILROADS</u>	<u>1972 TOTAL</u>
CHANNAHON	19,762,875	5,090,335	5,484,880	501,508	32,941,598
CRETE	12,818,810	42,560,020	2,718,180	532,058	59,049,068
CUSTER	3,136,080	1,499,180	822,085	118,540	5,575,885
DuPAGE	76,550,715	74,289,530	12,310,730	348,352	163,499,427
FLORENCE	3,688,530	485,740	545,675	199,248	5,019,193
FRANKFORT	11,860,000	40,137,310	4,112,500	712,480	56,822,390
GREEN GARDEN	7,118,000	572,550	869,594	-	8,661,114
HOMER	8,512,000	7,215,990	4,077,055	9,126	29,814,971
JACKSON	5,194,610	3,218,470	1,306,850	128,735	9,848,675
JOLIET	33,703,600	237,805,720	95,088,290	5,962,920	372,561,530
LOCKPORT	26,759,630	85,809,535	50,461,490	1,468,458	164,499,113
MANHATTAN	7,744,335	5,406,870	3,239,450	366,556	16,757,211
MONEE	12,135,760	24,900,220	2,753,250	1,785	39,761,025
NEW LENOX	6,963,170	30,008,090	3,151,650	937,168	41,060,078
PEOTONE	7,651,760	8,336,175	2,044,720	115,250	18,147,905
PLAINFIELD	12,093,550	32,443,380	5,310,819	477,656	50,325,505
REED	2,525,040	6,124,360	1,226,035	124,575	10,100,010
TROY	14,071,520	36,938,410	5,163,045	637,872	56,810,947
WASHINGTON	8,643,190	6,220,560	1,620,410	342,076	16,826,236
WESLEY	4,362,260	4,454,690	558,790	100,624	9,476,364
WHEATLAND	7,474,160	6,690,700	1,670,420	283,404	16,118,684
WILL	7,256,960	824,600	736,180	29,145	8,846,885
WILMINGTON	5,353,290	11,855,340	2,489,420	607,649	20,305,699
WILTON	<u>7,050,410</u>	<u>527,210</u>	<u>629,735</u>	<u>59,052</u>	<u>8,266,407</u>
TOTAL-					
WILL COUNTY	312,502,155	684,936,085	209,493,443	14,164,237	1,221,095,920
CITY OF JOLIET ONLY	12,550,360	209,300,285	25,016,930	3,894,774	250,762,349

Joliet Region Chamber of Commerce, 71 N. Ottawa St., Joliet, 815-727-5371

VII - 5

(see county map)
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Local Government Finances - 1967 **TABLE 3-4**

General revenue					Direct general expenditure						
	total	inter gov.	taxes		total	per capita	educa tion	high ways	pub. wel- fare	health & hosp.	gen. debt out-stand.
			total	prop-erty per capita							
Counties	mil. \$	%	%	\$	mil. \$	\$	%	%	%	%	mil. \$
Illinois											
COOK	1,604.5	26.1	60.8	152	1,614.0	250	40.8	8.2	3.5	4.1	2,407.2
DUPAGE	111.9	17.2	66.7	172	105.8	220	62.7	6.2	2.0	2.9	129.7
GRUNDY	5.8	17.7	74.1	160	5.4	175	61.8	14.0	2.4	.6	5.2
KANKAKEE	19.8	21.8	64.4	120	19.9	157	62.0	8.7	.4	.7	17.1
KENDALL	6.3	17.3	73.1	184	6.2	211	67.0	11.7	.5	.2	5.5
WILL	50.6	22.2	66.8	139	49.2	186	62.4	6.2	.4	1.5	71.2
Indiana											
LAKE	176.9	27.2	65.7	221	168.6	262	55.3	5.5	7.1	1.0	138.6

AGRICULTURE AND MINING

Agriculture and mining are important economic factors in some regions, and not so strong in others. In Will County it would appear that agriculture is an important factor to the areas economy, (yet still ranking behind Cook & Dupage Co. in farm and land values). (see table 3-5) Table indicates that there several large farms as well as several small sized farms. Current trends might indicate a great increase in the value of farmland per acre opposed to the 1969 figures. The fact that the farmland is of great value to the region should be considered in relation to influx of development occurring around municipalities.

Mining, on the other hand, does not seem to be a strong economic force, although more so than in surrounding counties, with the exception of Cook Co. (see table 3-5)

Agriculture- 1969														TABLE 3-5		
Counties	Mineral Industries 1967		Size of farms			Farms with sales of \$2500 & up				Value of products		Value of land & buildings				
	esta- blish- ments	value of ship- ments	ave.	less than 10 acres	1000 acres & up	tot.	oper- ated by corp.	with sales \$10,000 -\$39,999	with sales -\$40,000 & up	tot.	ave. per farm	ave. per acre				
														#	acres	#
Illinois																
COOK	61	27.8	130	126	6	470	3.6	39.8	16.8	17,075	275	2,107				
DUPAGE	9	(D)	174	63	3	296	4.7	48.0	19.3	11,578	411	2,367				
GRUNDY	2	(D)	285	22	7	754	.5	61.0	11.7	16,301	170	597				
KANKAKEE	5	(NA)	261	49	20	1,351	1.0	57.7	15.2	33,842	158	604				
KENDALL	2	(NA)	247	42	8	682	.6	51.5	24.5	27,529	183	742				
WILL	11	9.4	213	74	18	1,519	.7	54.3	9.5	34,309	181	849				
Indiana																
LAKE	(NA)	(NA)	191	45	10	618	1.8	47.6	12.6	13,770	135	707				

(NA); not available (D); withheld to avoid disclosure

* Source; Cities & Counties Data Book 1972

B I B L I O G R A P H Y

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1972

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GEOLOGY FOR PLANNING IN WILL COUNTY

Land use traditionally has been guided by the physical attributes of an area. Geology, especially in the form of mineral deposits, water supply, and surficial characteristics, has and will continue to have implications in Will County. This section of GEOLOGY FOR PLANNING IN WILL COUNTY will relate important geologic features to planning and serve as a guide to more detailed study of these considerations.

The greatest portion of the mineral resources in Will County are in the form of building materials. Limestone and Dolomite for crushed stone and building blocks are the most commonly quarried materials. There are now several quarries along the Des Plaines River, as it is most easily found where rivers cut into the existing Silurian bedrock. (Refer to Map 1)

Sand and gravel are next in importance. Their uses are many, including roads, concrete, mortar, and beaches. Again, major areas of production are along the Des Plaines and Dupage Rivers. Major deposits are found along streambeds and glacial outwash areas. Deposits are also found in Kames and Eskers, old glacial lake beaches. Sand only is found in dune deposits in the southwest part of the county. (Map 1)

Coal deposits can be found in the southwest portion of Will located in the Pennsylvanian formations. However, most of this coal is either shaft or strip mined already and what's left is from 100 to 200 feet down. Large piles of overburden are left and consideration must be given to any development on old coal shafts.

Other mineral possibilities are clay, peat, and petroleum. Petroleum is the least likely. There are no wells now and deposits that could exist in Pennsylvanian anticlines would be small. There are clay deposits in the southwest part of Will and a clay pit just west of Will in Grundy County. The importance of clay for bricks and pottery has been de-emphasized with widespread use of concrete and bituminous pavement. Peat for horticultural uses does exist in the form of Grayslake Peat and can be found in several areas in Will County.

Another major geological consideration affecting planning is ground-water supply. Ground-water occurs in permeable surficial or subsurficial materials referred to as aquifers. These deposits act as storage areas, to channelize movements of water, and act as avenues of recharge. The nature of these materials will help determine water quality, rate of yield, and design of wells. Geologic structure will determine direction of ground-water movement, artesian pressures, temperature, and areas of recharge.

Surficial aquifers from glacial deposits are the least tapped sources in Will County. They occur in sand and gravel deposits that underlie glacial till and occur most frequently in valley trains and outwash plains. (Map 2) There are disadvantages in using these aquifers because they are irregular in occurrence and more difficult to find, but the advantages of lower pumping costs and cooler, better quality of water often offset disadvantages. Many times the pumping rates will be larger in certain surficial aquifers. Specific locations in Will County include the Dupage and Des Plaines River Valleys

south of Naperville and in the Joliet area. Good locations for surficial aquifers can also be found in the Hodley Buried Bedrock Valley and the Lemont Drift of Joliet. (Maps 2 and 3)

Subsurface aquifers occur in four formations. The one closest to the surface and the youngest deposit is the Silurian Dolomite. (Map 3) It is closely related to surface aquifers and is recharged through percolation from the surface. Most wells in this formation are in the upper 75 feet and yield as much as 1000 gallons per minute. Even though occurrence of water is inconsistent the Dolomite shows no permanent effect of pumping yet as the deeper aquifers have.

Farther down the Glenwood-St. Peter Sandstone yields about 10% of the total groundwater. Its productivity is consistent but only moderate amounts can be withdrawn. The area with the most possibility is to the west of Will County where the sandstone is close to the surface and they are recharged.

The most productive layer is even farther down in the form of the Irontown-Galesville Sandstone. (Map 3) It provides 75% of the total subsurface discharge. By 1980 it is expected to produce 92 million gallons per day. If this trend continues, the water will be depleted in this aquifer. The water level in Chicago in 1958 was about 50' above sea level and by 1980 it will be 250' below.

Separated by a dense shale, the Mt. Simon Sandstone is the lowest aquifer. The waters in it are under greater pressure than the Irontown-Galesville formation, but is more mineralized and a greater expense to pump.

Evaluating the aquifer situation in Will County, it would seem

that surficial and shallow Dolomite aquifers should be developed more intensely. There is little or no difference in nonpumping waterlevels in the area and the water is of good quality. With continued use of the deep aquifers we run the risk of depleting or contaminating them. The level has already declined as much as 700 feet in areas since 1864. Land with access to surficial aquifers should be considered as having an important attribute.

The characteristics of the surface deposits will affect the planning capabilities of the land. The planning capabilities in (Table 1) have been generalized from other sources. For exact location of Formations and Members, refer to Willman, Summary of the Geology in the Chicago Area.

Of special note in Will County is the Sandwich Fault Zone. At its exposed end west of Will, it is about 100 feet wide and the rocks are intensely sheared. The northern section is a vertical fault with 250 feet maximum displacement and the north rocks on the higher side. (Map 3) The south Sandwich fault section is more of a parallel fault, offset to the south with the north rocks on the low side. A fault zone will offer strong implications to structural design, possible future movement, reservoir siting, and obstruction of aquifer layers. Earthquakes have been experienced in the area and investigation of this area is recommended.

TABLE 1)	PLANNING CAPABILITIES								
	UNIT NAME (Formation and Member)	Flooding Potential	Water Table	Natural Water Content	Plasticity	Permeability	Frost Susceptibility	Compressibility	Erosion Factor
	Cahokia Alluvium								
	Grayslake Feat								
	Parkland and								
	Equality Formation Carmi Member								
	Equality Formation Dolton Member								
	Equality Formation (Lake Plain)								
	Henry Formation Mackinaw Member								
	Henry Formation Batavia Member								
	Henry Formation Lasco Member								
	Medron Formation Madsworth Member								
	Valparaiso Groundmoraine								

KEY:

Low



Medium



High



PLANNING CAPABILITIES OF SURFICIAL GEOLOGIC MATERIALS

*For further information, refer to Bibliography reference no. 6.

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10. Report on Investigations 47. T.A. Prickett, L.R. Hoover. Ground Water Development in Several Areas of Northeastern Illinois. Illinois State Water Survey: Urbana, Illinois, 1964.

A GEOMORPHOLOGIC REPORT

ON

WILL COUNTY

compiled by:

Pick Briggs
Rod Drake
Paul Meder

for

~~The~~ Will County Forest Preserves District
October 20, 1975

A GEOMORPHOLOGIC REPORT
ON
WILL COUNTY

I. Introduction

The study of the Geomorphology of Will County was conducted to summarize the general surfacial characteristics of the county. This report is condensed summary of the result of that two week study and is intended as a supplement to the maps also submitted and described below.

II. Study Tools

1. A Relative Relief Map indicating changes in elevation every fifty feet has been compiled to emphasize the general surfacial appearance of the area.
2. A Glacial Features Map indicates the major physical differences in Will County resulting largely from the latest stage of continental glaciation, the Wisconsinan. The map is broken down into the four main post glacial characteristics, moraines, lake plains, till plains, and outwash plains. The various sub-moraines of the Valpriso morainal system are indicated.
3. Three representative Sections have been illustrated cutting through the county. These sections point out geomorphic features, elevation change and locations of man-made features such as railroads and major highways

4. A Features Impact Study was undertaken to familiarize the planner with some of the more common as well as uncommon surficial features of Will County. An evaluation of each feature under certain criteria accompanies each individual study.

III. Relative Relief

The elevation difference in Will County ranges from about 515 feet above sea level to 820. The lowest point is found in the Des Plaines river valley, where it exists Will County, near Lorenzo. The highest point is found atop the Valparaiso moraine near Monee.

The county has a general slope facing the southwest due to the morainal drifts from glaciers which approached from the northeast.

IV. Glacial Features

The surface features are largely a result of glaciation, therefore the bulk of the study has centered around post glaciation features. These glacial deposits almost completely mask a bedrock surface on which glacial and water erosion produced a relief and roughness at least comparable to that of the present surface. Depositional features are, moraines, outwash plains, filled lake basins, river floodplains, and valley trains. Erosional features include the sluiceways produced by glacial floodwaters, bluffs and numerous small valleys that streams have eroded in the glacial deposits. The surface

therefore, in terms of an erosional cycle, is very youthful.

There are basically two morainal drift systems which are present in Will County. Each system is comprised of other small moraines.

Valparaiso Morainic System

This system is made up of the Claredon Moraine, Westmont Moraine, Keeneyville Moraine, Wheaton Moraine and West Chicago Moraine. These moraines are closely spaced and appear to represent the ice front or perhaps only brief stands during the retreat. The boundaries between the moraines are indefinite in many places. Only the West Chicago moraine at the front of the morainic system is continuous.

Topography of the Valparaiso moraines is rough. Troughs, barns, and kettles are particularly large and abundant in the area. Lakes are particularly uncommon. The West Chicago drift includes extensive outwash plains along the front of the moraine from Joliet northward.

Yorkville Member of Wedron Formation

The Yorkville system consists of the Minooka moraine, Rockdale moraine, Wilton Center moraine and Manhattan Moraine. It is difficult if not impossible to determine a difference in the surficial features of the various moraines. They all have a low surface relief and little outwash is associated with the system.

Kankakee Lake Plain

The Kankakee Lake Plain is located in the western portion of the county and is characterized by a comparatively flat

surface. The plain generally slopes from the end of the morainal system to a central area about 100 feet lower where the Des Plaines and Kankakee rivers meet to form the Illinois river.

The lake plain includes the flat topped southern part of the Minooka moraine and the segments of the Rockdale, Wilton Center and Manhattan moraines that were in part covered by Lake Maumunsee or were islands in it.

Outwash Plain

The major outwash plain is located throughout the Des Plaines and Kankakee River valleys. It is characterized by a relatively flat area with sandbars and sand and gravel ridges. The Plain resulted from the outwash materials (rock, soil), from the melting glacier.

Till Plain

The till plain in Will County is also referred to as the Manhattan-Minooka Groundmoraine. The area covered by the plain is a gently rolling, flat surface.

Till plains are made up of miscellaneous material left covering the region formerly occupied by the glaciers.

V. Will County Sections

The three sections through the county show the large difference in elevation created by the morainal drifts, lake plain and outwash plain, creating a flat, then abruptly rolling and sometimes rough terrain.

There are a large number of major highways and railroads running along the Des Plaines river valley. This is typical of inland movement throughout the country. It is interesting to note that more recent highway developments and railroad lines have moved out of the stream valleys, up the sides of the moraines.

VI.. Conclusion

The landforms of Will County are strictly a result of the functions of glaciation. The moraines, kettles, troughs, outwash plains, all have had their impact on the economic and social life of Will County. This study is an attempt to explain these forms and their implications, especially to county wide planning. They cannot and should not be ignored but integrated into the planning process to produce a more fullfilling result.

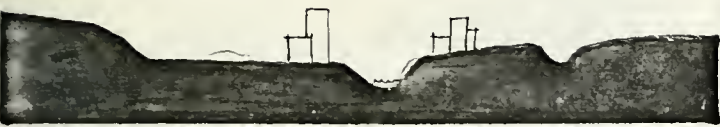
FEATURES IMPACT STUDY

The following is a study of various landform features which commonly represent Will County, man-made as well as natural. Two pages accompany each feature which was studied. The first contains a xerox of the feature from a 7 1/2 minute quadrangle geologic map, in its more common surroundings. A brief synopsis on the features formation and characteristics follow as well as a representative elevation and locational map. The second page evaluates the feature under several criteria for development; Urban, Road, Woodland, and Farming. The purpose of the study is to acquaint those whose concern is planning for the county, with most of its features, common and uncommon to any planning strategy.

FEATURES IMPACT STUDY

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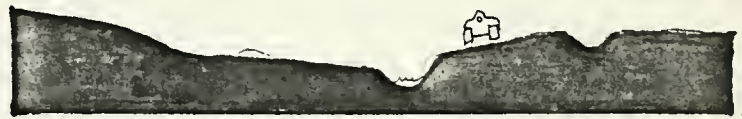
URBAN



Severe Restrictions

Any form of urbanization would be hazardous due to the unstable soils, most especially on the sides of the kettle. Tarns may however provide interesting recreation for urban areas surrounding the feature, since the flatlands are often prime areas for settlement.

ROADWAY



Moderate/Severe Restrictions

Paved roads should avoid Kettles altogether unless soil stabilization is undertaken. Gravel or dirt roads are allowable for small amounts of traffic only.

WOODLAND



No Restrictions

Forest cover is the most desirable situation for a kettle, especially with a tarn. Recreational opportunities are limitless in relation to most of the surrounding flatland. The usually clear water characteristic of the tarns is also an exploitable feature.

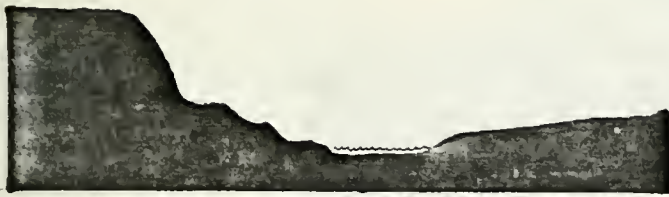
FARMLAND



Moderate Restrictions

The fertility of the surrounding outwash plain for agriculture makes the kettle an obstacle to the farmer and has led to the draining of many tarns. The slope of the sides is the main determinant as to whether or not it will be integrated into the field.

URBAN



Severe Restrictions

High intensity urbanization is completely inhibited. Residential development is possible but not desirable, leading to gradual erosion of slopes and visual blight, the bluff being visible for miles, and floodplain dangers always present.

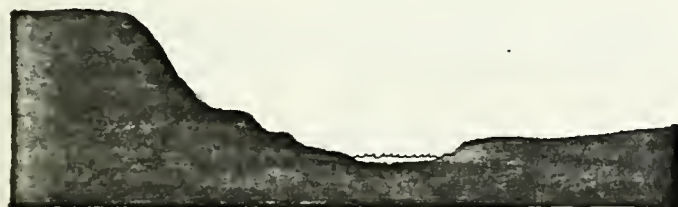
ROADWAY



Moderate/Severe Restrictions

Roads on the bluff areas are reasonable when at a reasonable slope and where adequate provision is made for stabilization of slope. Floodplain restrictions are minimal due to permanence of roadway.

WOODLAND



No Restrictions

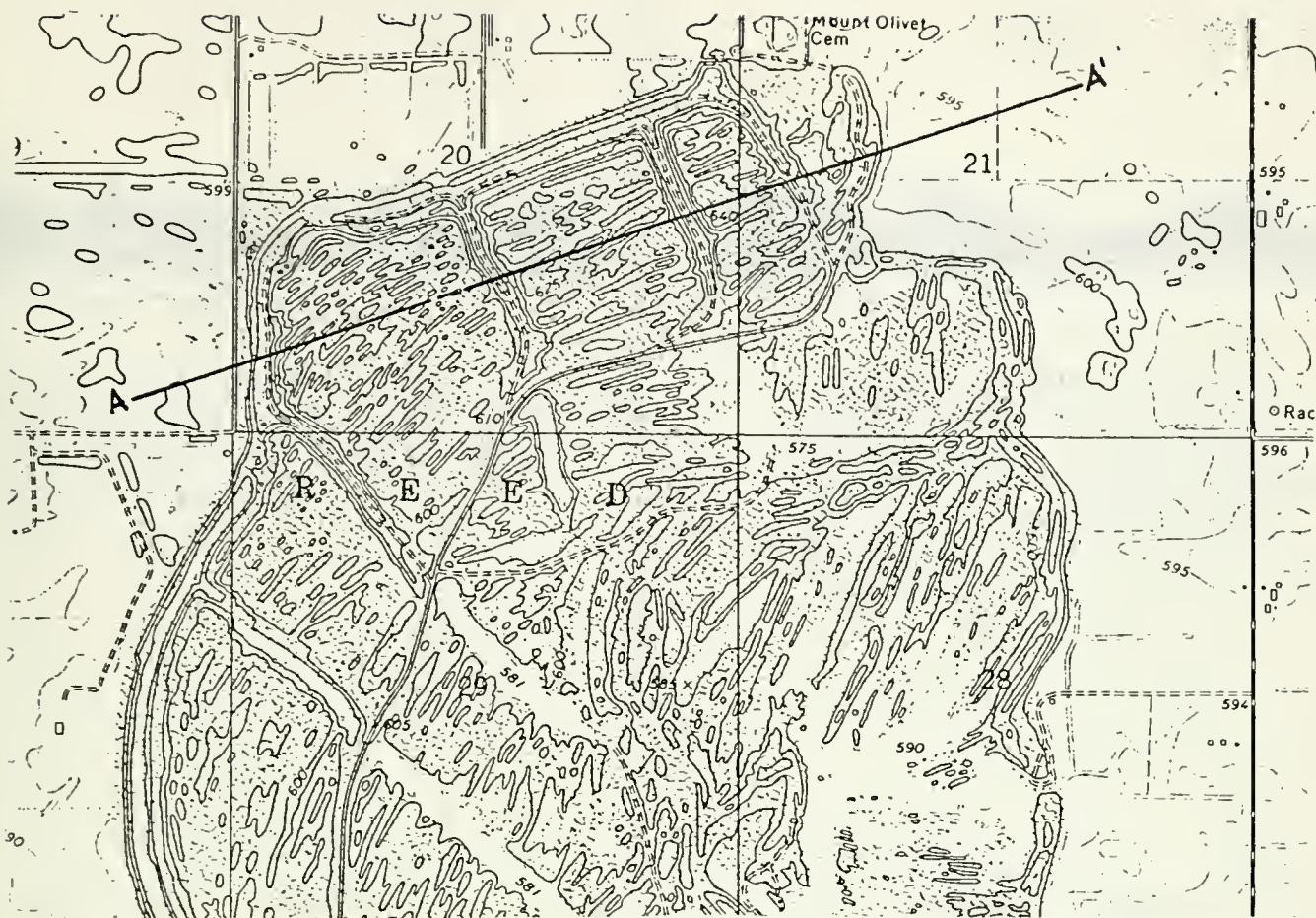
Woodland is a desirable situation for both areas. On the bluffs to stabilize the slope, and on the floodplain to serve as a check and slow down flood waters. Recreational opportunities are limitless.

FARMLAND



Moderate Restrictions

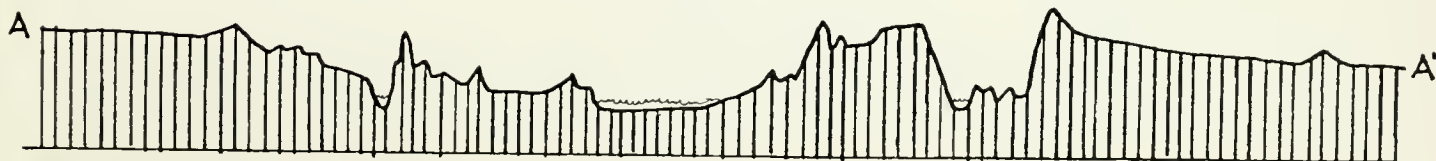
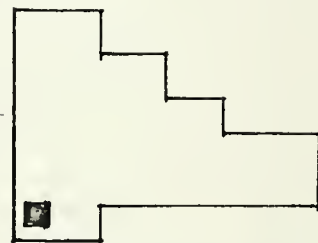
Farming on the bluff area is usually not possible and terracing not advisable. In the floodplain area however, the planting of crops is usually up to the farmer and depends on the type of crop. The usual great flatness seems to encourage most people to take the risk.



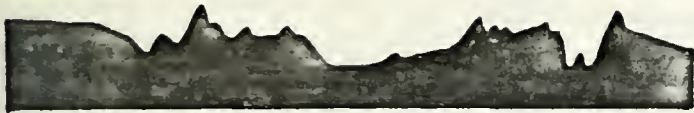
STRIP MINES

FORMATION: Strip mines are of course an entirely man-made feature, but a very predominate one in regards to Will County. Most of the large mines are for coal, while scattered smaller ones operate for gravel. Many of the mines are no longer in use and require some form of reclamation.

CHARACTERISTICS: Very rough terrain is the most common characteristic as well as vast amounts of unusable soils, some from as far as 200' below the surface. Ponds and lakes dominate the low areas, while rocks and abused vegetation dominate the slopes and uplands.



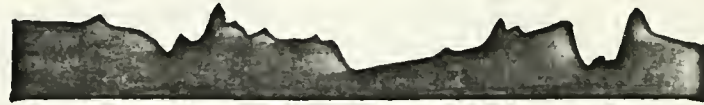
URBAN



Severe Restrictions

Unstable soils and slope strictly prohibit any development. Fringe areas are usually just as uninhabitable due to overburden deposition.

ROADWAY



Severe Restrictions

Usually the mined area is crisscrossed with numerous gravel or dirt roads which may continue to be used, for light traffic only. All permanent road surfaces are not viable.

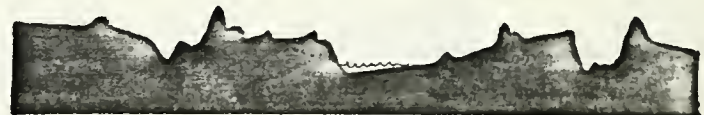
WOODLAND



No Restrictions

Restoration of woodland or some equal type of mass vegetation is commonly the best way to reclaim the strip mine, through gradual stabilization of slopes. Recreational potentials are limitless with the rough terrain and countless ponds.

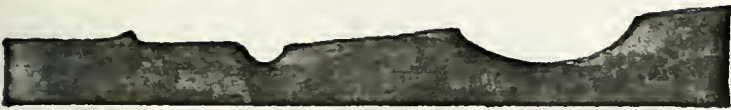
FARMLAND



Severe Restrictions

Slope and soil determinates are lacking and usually true also for overburden area.

URBAN



Severe Restrictions

No urbanization should take place within a mile of known sinkhole areas. Subsidence has been known to have the effect of a small earthquake.

ROADWAY



Severe Restrictions

No paved roads should be in a sinkhole area unless necessary. Gravel or dirt roads are acceptable but should be carefully placed.



No Restrictions

Forest cover is again the ideal situation allowing for stabilization of the bank.



Moderate Restrictions

Since sinkholes commonly occur in flat areas, it is usually under agricultural conditions. Damage to crops is variable and usually worth the expense. Heavy machinery should not be allowed.

URBAN



Moderate Restrictions

The rocky soil and slope would inhibit intense urban uses, but seem suitable for small residential use, affording good views for the residences, while not becoming too prominent

ROADWAY



Moderate Restrictions

Slope is the main restriction for roads. While it is not overly steep the feature is usually just a hump a quarter mile long which the road will usually go around.

WOODLAND



No Restrictions

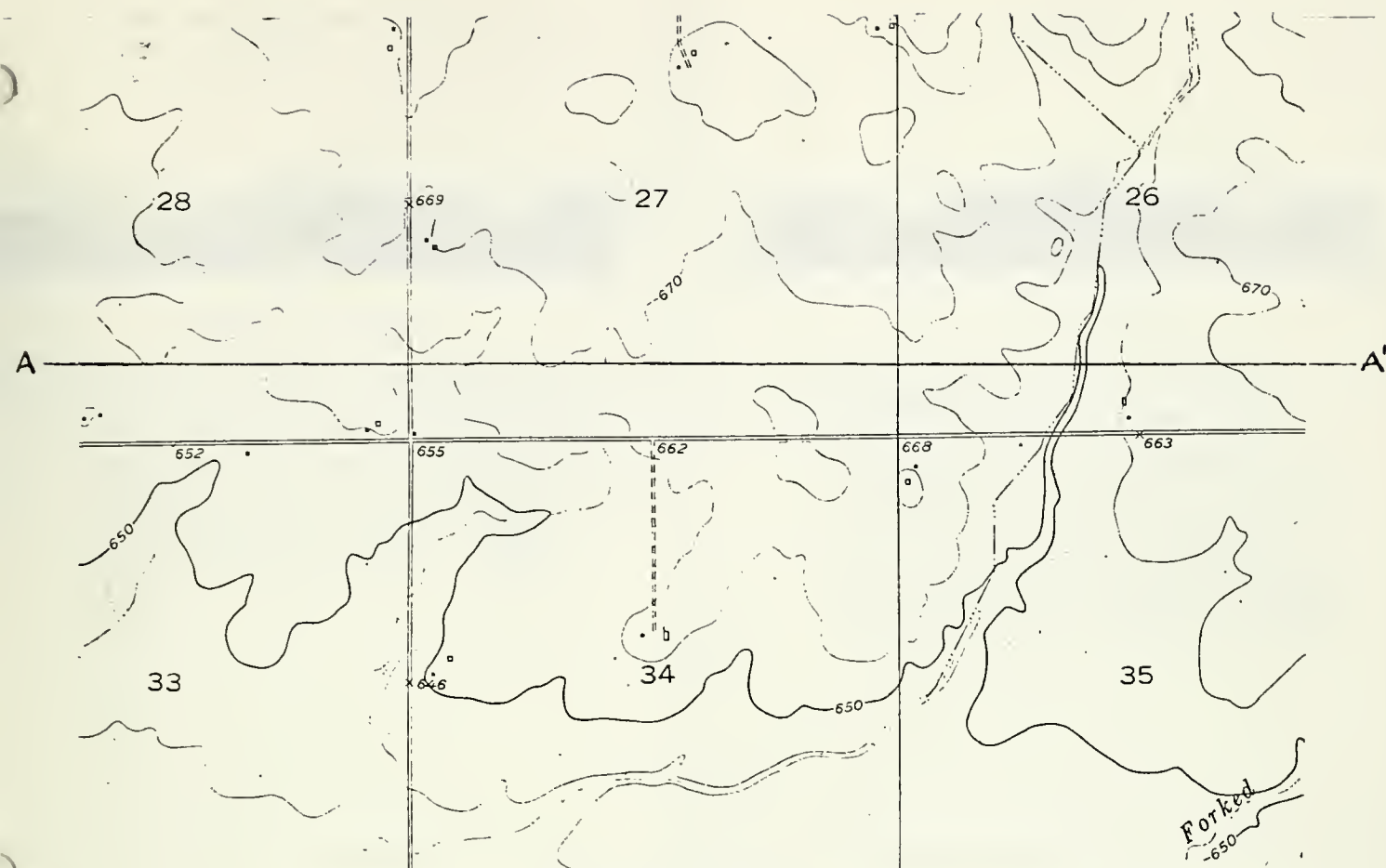
Drumlins have many possibilities for recreational areas, especially in the context of the usually surrounding flatlands. Soils greatly limit the plant species.

FARMLAND



Severe Restrictions

Soils are again the greatest determinate. Their rocky nature prohibits most farm activities. In some areas the farmhouse is a predominate feature of the drumlin, where a farmer may observe his surrounding land.



OUTWASH FLAIN

FORMATION: Outwash plains are produced by the merging of a series of outwash fans or aprons resulting from the melting waters of a stagnate glacier. The plain is totaly a rproduct of erosion and deposition. The surface is generally smooth, but tends to be rolling due to ice chuncks which melted after layers of soil where upon it, in some cases leaving large depressions refered to otherwise as kettles.

CHARACTERISTICS: Soils tend to be rather rich, but are sometimes very spotty. Intermittent streams are very common, being remiants of the channels which drained the glacier.



URBAN



No Restrictions

Outwash plains are the most suitable areas for urbanization, which can be seen by observing the present major population centers. The only drawbacks are the stream areas and very close to the morainal edge, where seasonal flooding is common.

ROADWAY



No Restrictions

Road construction is most feasible on this feature. Its relative flatness and evenness of terrain make it most accessible and feasible. Although it may become too even, resulting in boredom for the auto, its more uneven characteristics may be taken advantage of. (kettles, tarns)

WOODLAND



No Restrictions

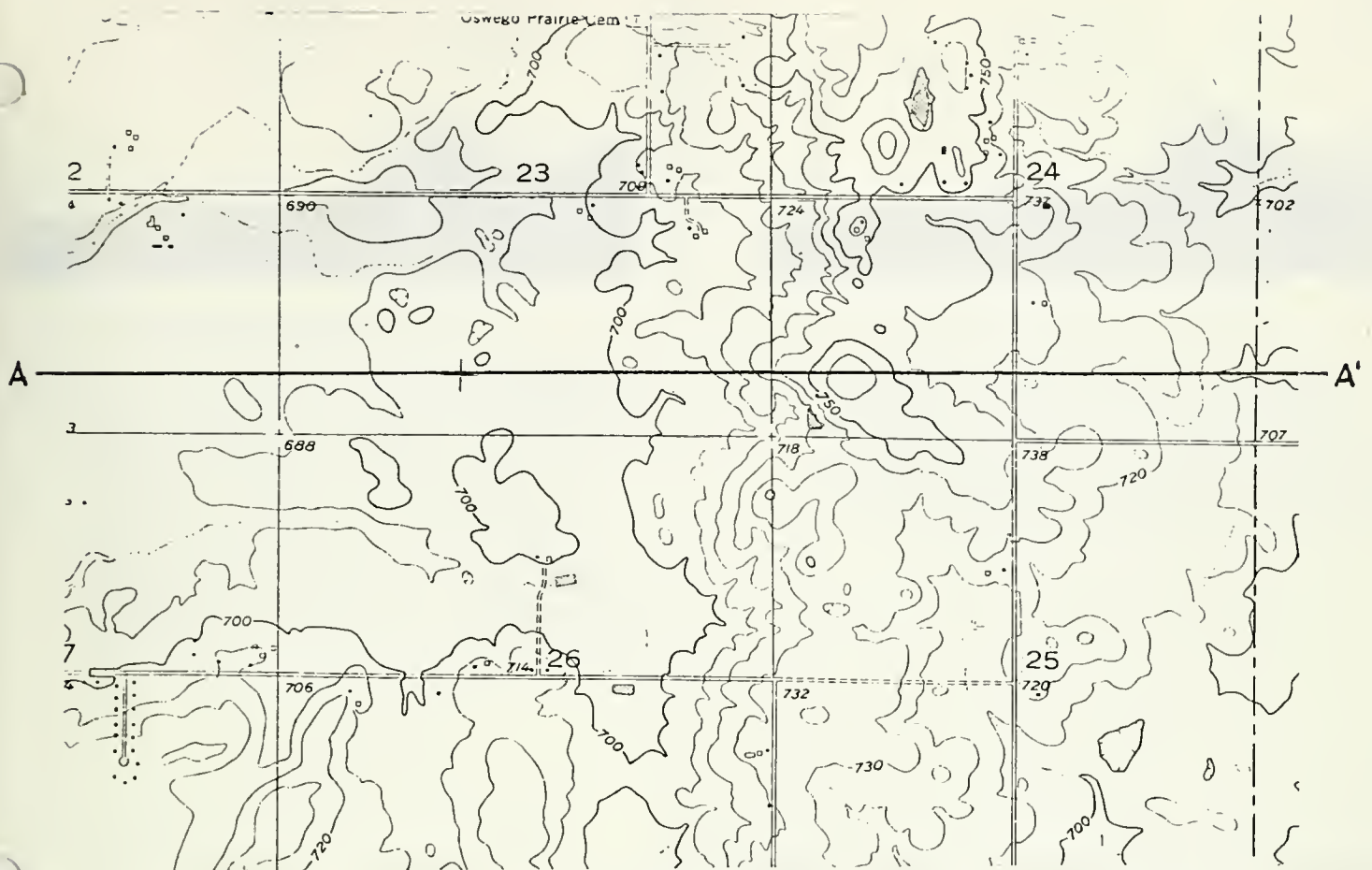
The only restrictions on woodland would be the overriding importance of other activities, especially farming on this feature.

FARMLAND



No Restrictions

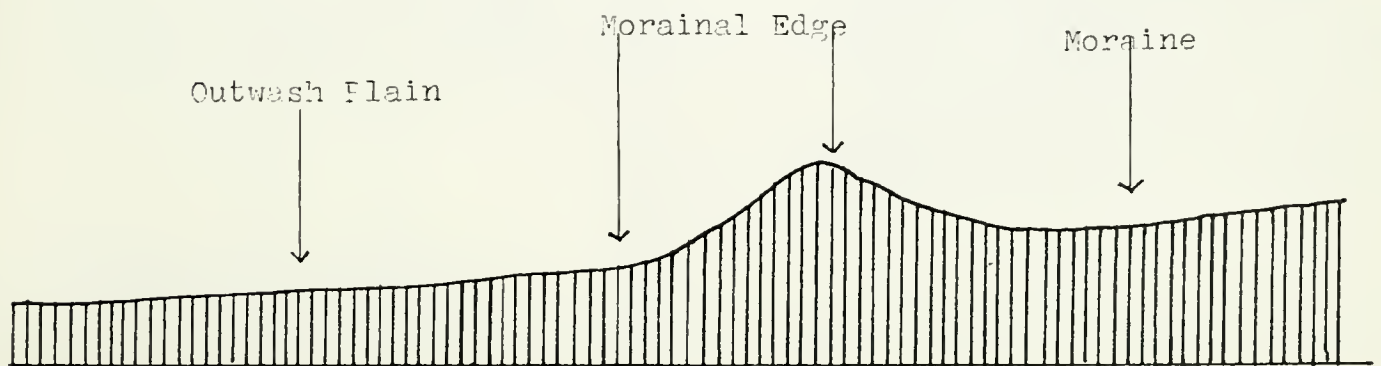
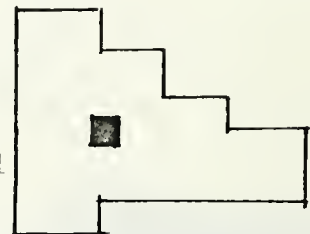
The outwash plain is most suitable for this activity in a rather large scale due to its high fertility and relative flatness. This is already the activity predominating in the area



MORAINAL EDGE

FORMATION: The morainal edge is a unique combination of two glacial features, the moraine and the outwash plain. It represents the farthest edge of the glacier as it stagnated at specific point in time. This front edge is where most of the melting occurred eroding much of the freshly deposited soil and producing the outwash plain.

CHARACTERISTICS: Troughs are the most common feature of the morainal edge, many large ones and many more small ones. The edge often appears as a bluff, but can be differentiated by the broad, flat plain it often overlooks. Soils are often rocky at the top but quite fertile towards the bottom.



URBAN



Moderate Restrictions

Soils are most usually stable enough for building and slopes are rather permissive. However, with its overlook onto the broad plain, too much building could become an eyesore for many miles around. The slopes are most suited for residential building, affording great views, yet keeping fairly well hidden.

ROADWAY



Moderate Restrictions

Problems are much the same as Urban. A roadway may easily be cut along the edge affording fantastic views for the auto, but leaving a ribbon of concrete to be seen from many miles away.

WOODLAND



No Restrictions

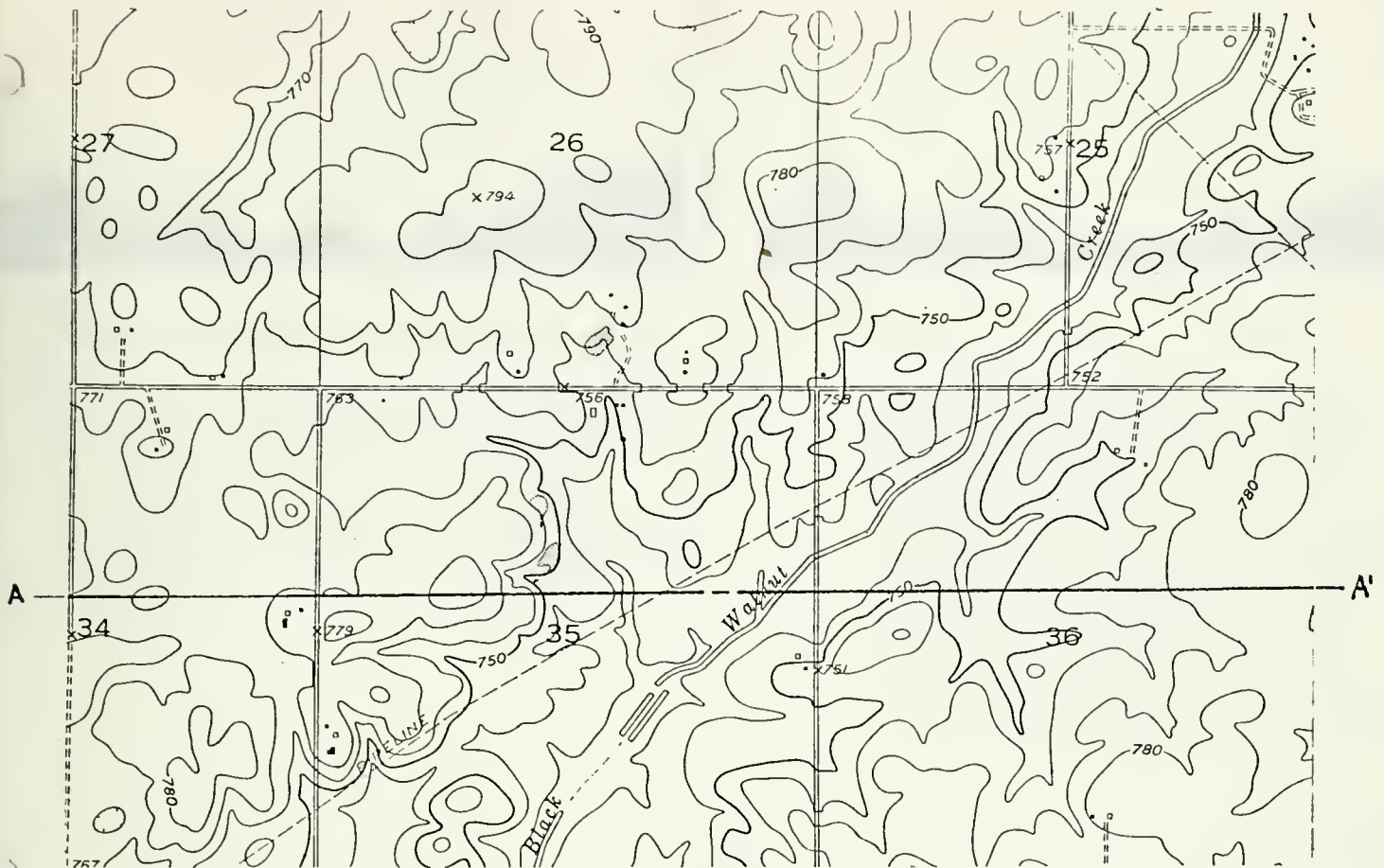
Being such a prominent view from any place on the plain, woodland on this slope can be very handsome. Recreational opportunities are also great.

FARMLAND



Severe Restrictions

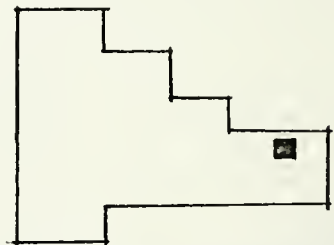
The excellent soils at the bottom of the slope would seem to encourage agriculture, but the majority of the feature is too steep to farm without terracing, which would only destroy many of the outstanding features of this formation.



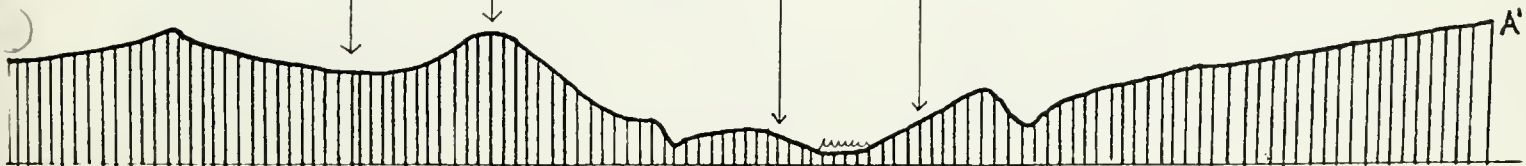
GLACIATED LANDSCAPE / MORAINES

FORMATION: The above topography is common of the eastern half of Will County. It is a product of the last continental glacier period to sweep through this area, the Wisconsin. The resultant landforms were not formed as the glacier descended from the North, but as it retreated, forming moraines at each melting point. Most of Will County lies within the Valpriso moraine system, which is made up of several smaller moraines which are pointed out on maps accompanying this report.

CHARACTERISTICS: Morainial landscapes are most commonly recognized by their rough, rolling landforms, dissected by many streams and hilltops, due mostly to water erosion at the time of the melting glacier. Soils are usually fairly rich, yet contain many rocks and small stones.



hilltop
valley
floodplain



URBAN



Moderate/Severe Restrictions

The rocky nature of the soils and large total area of floodplains greatly reduce the potential urban use sites. Small residential developments are more suitable, but should be restricted to moderate slopes.

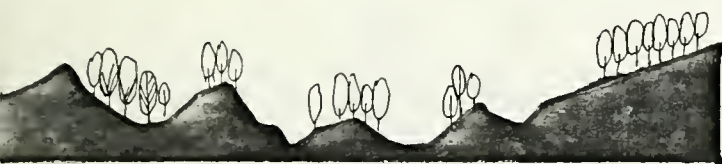
ROADWAY



Moderate Restrictions

The rough and hilly terrain can make road construction expensive, but the resultant roadway aesthetics could overcome that obstacle. Fabulous views can be obtained from the hillsides or occasionally from hilltops. Construction should stay out of the floodplains as much as possible and cling to slopes and upland flats.

WOODLAND



No Restrictions

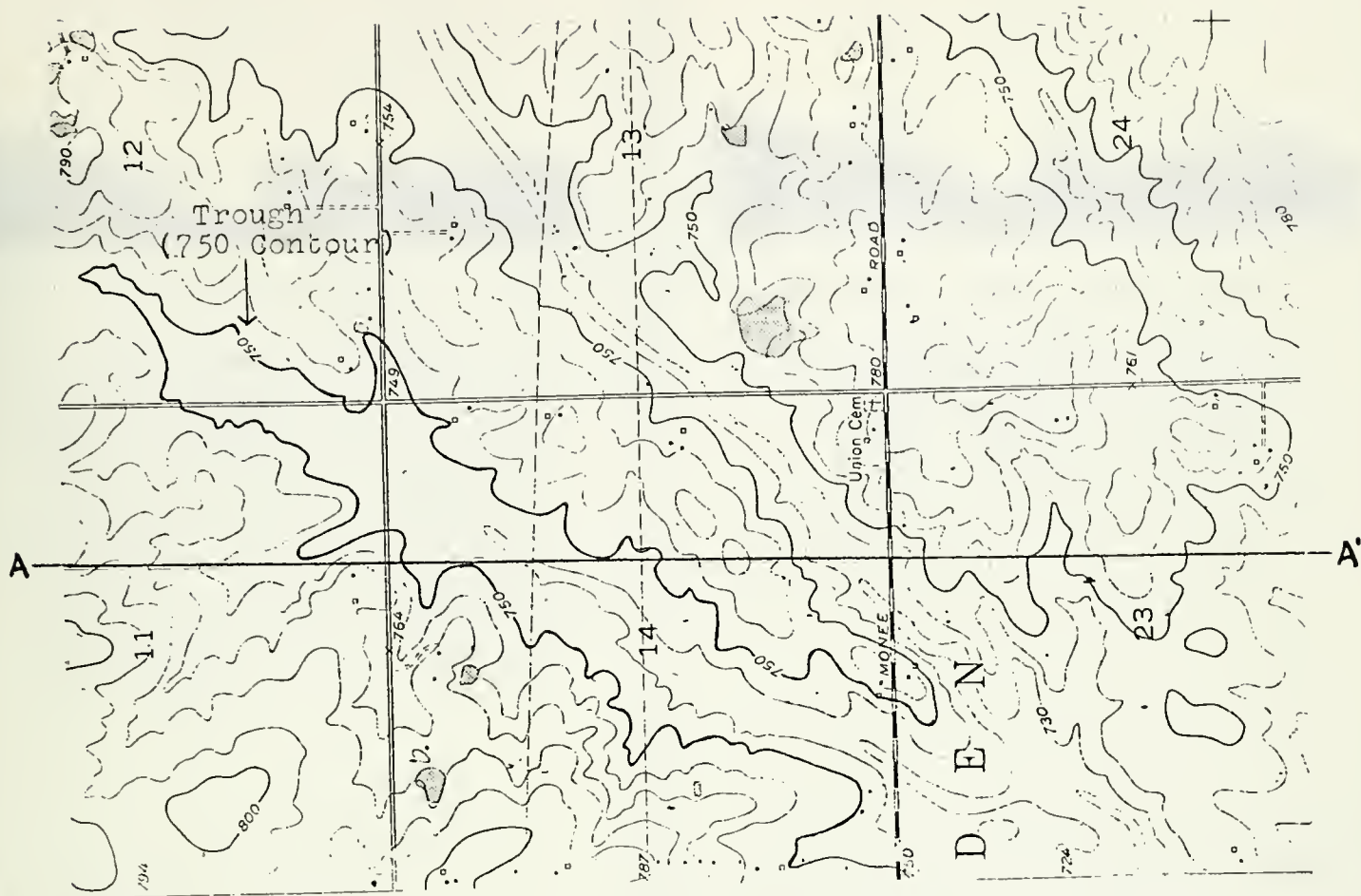
Forest cover is the ideal situation for these areas. The aesthetics provides unlimited use as a recreational area while serving as a check against the continuing erosion processes and flooding. Together with the interesting terrain, forested areas provide a distinct area for hiking in Illinois.

FARMLAND



Moderate Restrictions

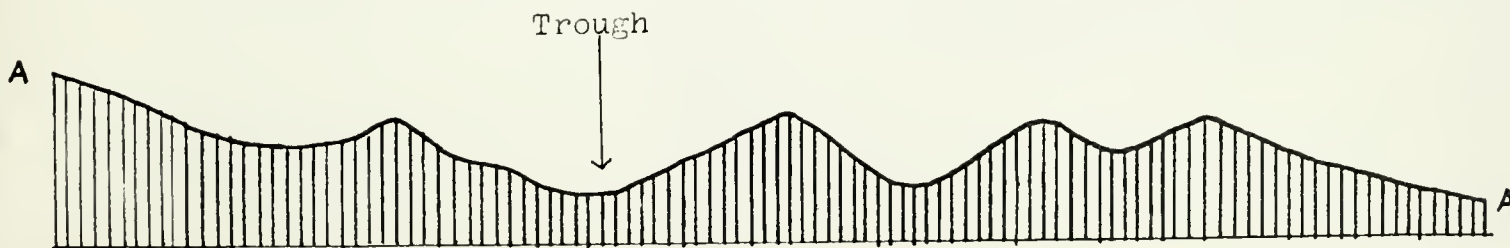
Slopes and rocks present the greatest restriction here. Although 90% of the soil is good for agriculture, erosion can quickly eliminate many fields if they are operated on many of the unprotected slopes. Therefore, crops should also be limited to the larger valleys, and in special instances, the floodplain.



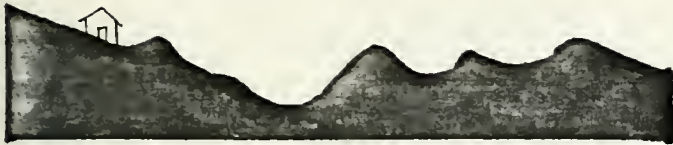
TROUGHS/TROUGH LAKES & STREAMS

FORMATION: Troughs are one of the most typical features of a glaciated area, more common and pronounced in mountain glaciers than continental. They are formed when the retreating glacier drags back with it, large rocks or material which cause a slight depression in the freshly deposited soil. The depression becomes more exaggerated when the glacier stagnates and begins to melt. The water, of course, follows the least path of resistance and further erodes the soil. Many of the streams remain and still carry water from the higher elevations, and many are blocked at one end or simply stagnate to form sometimes very large lakes.

CHARACTERISTICS: Usually surrounding terrain is rather rough, and sides can become very steep. They usually appear as several fingers extending up into morainal areas.



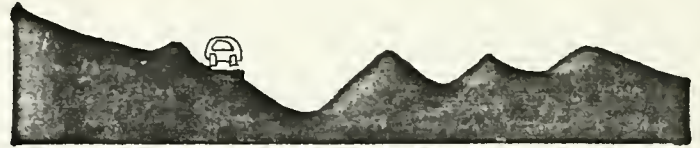
URBAN



Severe Restrictions

Although many troughs do not presently contain lakes or streams, most are still main water outlets during the peak rainfall periods. Erosion which has been checked by vegetation along the sides can easily resume if this is removed. Single residences can be allowed on the upland areas and great views afforded over the trough.

ROADWAY



Moderate/Severe Restrictions

Yearly flooding of most troughs also greatly limits road construction in the basin, but roads may be allowed along moderate slopes.

WOODLAND



No Restrictions

Vegetation should be afforded on as much of the sides as possible to stabilize slopes. Ragged terrain usually ideal for recreation, hiking.

FARMLAND



Moderate Restrictions

Should not be crop farmed, but high potential exists for grazing. Forage material is usually present as well as water sources. Very careful check should be maintained to prevent overgrazing.

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SOILS ANALYSIS

I. Major associations

"A soil association is a landscape that has distinct proportional pattern of soils normally consisting of two to three major soils and at least one or more soils of lesser extent.

This type of soils information is for those who are interested in a broad picture of the soils resources and soil conditions of the entire survey area. It is useful in comparing soils in different parts of the area and in larger tracts of land that may be suitable for special purposes."^I

A list of all major soil associations in Will County and their most important characteristics follows in the next page.

LA 337 WILL COUNTY

BOB MCHENRY
GEORGE GOMEZ

I. Major Soils Associations²

- A. Lorenzo-Warsaw-Wea
 - 1. dark-colored
 - 2. level to sloping
 - 3. developed from 1 to 4 feet of medium-textured material over calcareous sands and gravels
- B. Rodman-Casco-Fox
 - 1. light-colored
 - 2. nearly level to steep
 - 3. developed from 1 to 4 feet of medium-textured material over calcareous sands and gravels
- C. Saybrook-Drummer-Lisbon
 - 1. dark-colored
 - 2. level to sloping
 - 3. moderately permeable
 - 4. developed from 20 to 40 inches of loess over calcareous loam glacial till
- D. Drummer-Brenton
 - 1. dark-colored
 - 2. nearly level
 - 3. moderately permeable
 - 4. somewhat poorly and poorly drained
 - 5. developed from medium-textured materials over stratified outwash
- E. Elliot-Ashkum-Varna
 - 1. dark-colored
 - 2. gently sloping to sloping
 - 3. moderately slowly permeable
 - 4. developed from calcareous silty clay loam glacial till
- F. Milford-Martinton-Toledo
 - 1. dark-colored
 - 2. nearly level
 - 3. moderately slowly permeable
 - 4. developed from moderately fine-textured outwash or lakebed sediments
- G. Symerton-Andres-Halfday
 - 1. dark-colored
 - 2. gently sloping to sloping
 - 3. moderately slowly permeable
 - 4. developed from 20 to 40 inches of medium-textured material over calcareous silty clay loam glacial till
- H. Morley-Blount
 - 1. light-colored
 - 2. gently sloping to steep
 - 3. moderately slowly permeable
 - 4. developed from calcareous silty clay loam glacial till

- I. Bryce-Swygert-Mokena
 - 1. dark-colored
 - 2. gently sloping to sloping
 - 3. slowly permeable
 - 4. developed from calcareous silty clay glacial till or lakebed sediments

- J. Sawmill-Otter-Lawson
 - 1. dark-colored
 - 2. nearly level
 - 3. moderately permeable
 - 4. developed from medium to moderately fine-textured alluvial materials

- K. Maumee-Selma-Plainfield
 - 1. dark- and light-colored
 - 2. nearly level to strongly sloping
 - 3. rapidly permeable
 - 4. developed from loose outwash or aeolian (wind-blown) sands

- L. Hitt-Plattville-Channahon
 - 1. dark-colored
 - 2. nearly level to steep
 - 3. moderate to rapidly permeable
 - 4. developed from 1 to 3 feet of coarse or medium-textured materials over limestone bedrock

II. Agricultural suitability of major soil associations:

In terms of agricultural suitabilities, each soil association was either classified as Excellent, Good, Fair, or Poor. This classification is based on productivity of grain crops under a high level of management. Excellent and Good mean that soil is very productive and best suited for grain crop production. Fair means soil is not very productive and not very suited for grain crop production (usually due to steep slope or poor drainage characteristics). Poor means soil is not suited at all for grain crop production due to deficiencies and limitations in the soils.

II. Agricultural Suitability of Major Soil Associations³

Excellent

Saybrook-Drummer-Lisbon
Drummer-Brenton
Sawmill-Otter-Lawson

Good

Elliot-Ashkum-Varna
Milford-Martinton-Toledo
Symerton-Andres-Halfday
Morley-Blount
Bryce-Swygert-Mokena

Fair

Lorenzo- warsaw-Wea
Rodman-Casco-Fox
Maumee-Selma-Plainfield

Poor

Hitt-Plattville-Channahon
strip mine area

III. Agricultural suitability of individual soils:

To get to a higher level of detail that will benefit on-site studies and land-use decisions, a classification of agricultural suitabilities for individual soils was made. This classification was made using the Productivity of Illinois Soils circular 1016, pp. 13-17⁴, we were able to find productivity indexes for all of Illinois' soils. We chose to use the Grain Crops High Management productivity index for this purpose since this is what we most commonly encounter in the area. We compared these indexes to the classified grades of soils for high management which appears in Dr. Fehrenbacher's Prime Agricultural land in Illinois, article⁵. Each soil was compared with the grades of soils set out in this article and 4 groups were arrived at:

Grade A: 140-160 productivity index

Grade B: 125-145 " "

Grade C: 100-135 " "

Grade D: 0-100 " "

This classification follows on the next page.

III. Agricultural Suitability of Individual Soils

Grade A

59 Lisbon
73 Huntsville
107 Sawmill
149 Brenton
152 Drummer
197 Troxel
219 Millbrook
293 Andres
442 Mundelein
451 Lawson

Grade B

62 Herbert
67 Harpster
69 Milford
82 Millington
102 LaHogue
103 Houghton
145 Saybrook
148 Proctor
189 Martinton
206 Thorp
232 Ashkum
294 Symerton
295 Mokena
300 Abington
343 Kane
443 Barrington
697 Wauconda

Grade C

23 Blount
27 Miami
60 LaRose
89 Maumee
91 Swygert
130 Pittwood
132 Starks
134 Camden
146 Elliot
151 Ridgeville
157 Rankin
184 Roby
190 Onarga
192 DelRay
201 Gilford
210 Lena
220 Plattville

Grade C (cont'd)

223 Varna
235 Bryce
238 Rantoul
290 Warsaw
298 Beecher
317 Millsdale
321 DuPage
325 Dresden
326 Homer
327 Fox
329 Will
330 Peotone
365 Aptakisic
531 Markhem
696 Zurich
698 Grays

Grade D

25 Hennepin
49 Watseka
53 Bloomfield
54 Plainfield
88 Sparta
90 Plainfield
93 Rodman
98 Ade
131 Alvin
194 Morley
224 Strawn
228 Neppanee
241 Chatsworth
270 Oquawka
311 Ritchey
313 Rodman
314 Joliet
315 Channahon
318 Lorenzo
320 Frankfort

III. (agricultural suitability-continued)

It seems clear that the prime agricultural land should be kept in this activity.

This would place grade A and B soils as exclusively agricultural and would leave the other grades of soils to other uses (residential, commercial, industrial, roads, forest preservation, etc.). This of course is not enough to form a land-use criteria based on soil quality and characteristics. It was then pertinent to study soils on specific contexts, for specific uses which are under demand in the County.

IV. Soil/Use Groups

The limitations of each soil occurring in Will County were studied for the following uses:⁶

Dwellings with basements

Streets and roads

Sanitary landfill areas

Lawns and golf fairways

Campsite~~a~~ and picnic areas

Playgrounds

Path and trails

Using the Will County Soil Manual⁷, limitations for the preceding uses were checked for each soil, then the soils which had similar limitations were grouped into soil/use groups. A total of eleven of these groups was derived.

Following the groupings, the limitations of the major soil/use groups for the uses studied are charted.

IV. Soil/use Groups

Group I

53 Bloomfield
54 Plainfield
270 Oquawka
313 Rodman

Group II

98 Ade
190 Onarga
290 Warsaw

Group III

145 Saybrook
157 Rankin
240 Plattville
443 Barrington
698 Grays

Group IV

294 Symerton

Group V

25 Hennepin
88 Sparta
90 Plainfield
93 Rodman
131 Alvin
134 Camden
148 Proctor
194 Morley
224 Strawn
318 Lorenzo
325 Dresden
327 Fox

Group VI

27 Miami
60 LaRose
196 Harpster
223 Varna
531 Markham
696 Zurich

Group VII

49 Watseka
220 Plattville

Group VIII

241 Chatsworth
311 Ritchey
315 Channahon
503 Rockton
504 Dunbarton

Group IX

23 Blount
59 Lisbon
62 Herbert
73 Huntsville
91 Swygert
102 LaHogue
132 Starks
146 Elliot
149 Brenton
151 Ridgeville
184 Roby
189 Martinton
192 DelRay
197 Troxel
219 Millbrook
293 Andres
295 Mokena
298 Beecher
320 Frankfort
326 Homer
343 Kane
365 Aptakisic
442 Mundelein
697 Wauconda

Group X

20 Roby
67 Harpster
69 Milford
80 Proctor
82 Millington
89 Maumee
130 Pittwood
152 Drummer
201 Gilford
206 Thorp
228 Nappanee
232 Ashkum
300 Abington
314 Joliet
316 Romeo
317 Millsdale
321 DuPage
329 Will
347 Canisteo
441 Monee
451 Lawson

Group XI

103 Houghton
107 Sawmill
210 Lena
235 Bryce
238 Rantoul
330 Peotone

This matrix can be used as a fast easy-to-use checklist for site-scale land-use decisions. As found in the Will County Soil Manual⁸, the meanings of the limitations ratings are as follows: "ratings of Slight indicate that for a given use, the soils have no limitations or the limitations are easy to overcome. Moderate ratings mean that for a given use, the soils have limitations that can be overcome by average management and manipulation. Severe ratings mean that, for a given use, the soils have limitations that are difficult to overcome. Very severe ratings indicate that the soils have limitations that generally preclude any type of development."

SOIL LIMITATIONS

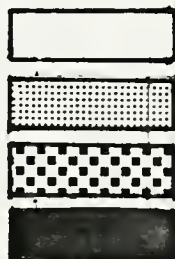
USES

SOIL/USE GROUPS

	Dwellings with Basements	Streets and Roads	Sanitary Landfill Areas	Lawns and Golf Fairways	Campsites and Picnic Areas	Playgrounds	Path and Trails
I							
II							
III							
IV							
V							
VI							
VII							
VIII							
IX							
X							
XI							

0-2 %
2-7 %
7-15 %
15+ %

slope classes



slight

moderate

severe

very severe

V. Best uses for soils: :

For our purpose of coming up with a classification of locations where soils are best suited for forest preservation, we can conclude that soils that fall within A and B grades of agricultural suitabilities should be left as prime agricultural lands. Looking at C and D grade soils the chart on the following page shows recommended uses for each soil. We have added a Conservation column into which all soils that are not usable for any other purposes fall in. This is ideal land to be put into forest preserve.

These soils best suited for Forest Preservation are listed on the page following the chart for more convenience. Another list is included to list soils that are best suited for Forest Preservation if their slope exceeds 15%.

V. Best Uses For Soils

Prime agricultural soils

59	Lisbon
62	Herbert
67	Harpster
69	Milford
73	Huntsville
82	Millington
102	LaHogue
103	Houghton
107	Sawmill
145	Saybrook
148	Proctor
149	Brenton
152	Drummer
189	Martinton
197	Troxel
206	Thorp
219	Millbrook
232	Ashkum
293	Andres
294	Symerton
295	Mokena
300	Abington
343	Kane
442	Mundelein
443	Barrington
451	Lawson
697	Wauconda

Best uses for remaining soils in soil/use groups

SOIL/USE GROUPS	USES							Forest Preserve
	Dwellings with Basements	Streets and Roads	Sanitary Landfill Areas	Lawns and Golf Fairways	Campsites and Picnic Areas	Playgrounds	Paths and Trails	
I	■	■			■			
II	■			■	■			
III	■		■	■	■		■	
IV	* * * * * all prime agricultural soils * * * *							
V	▨	▨		▨	▨		■	▨
VI	▨		▨	▨	▨	▨	■	▨
VII								■
VIII			▨				■	▨
IX								■
X								■
XI								■



-- best use



-- not applicable if slope exceeds 15%

Ideal soils for forest preserves

under all conditions

23 Blount
49 Watseka
89 Maumee
91 Swygert
130 Pittwood
132 Starks
146 Elliot
151 Ridgeville
184 Roby
192 DelRay
201 Gilford
210 Lena
220 Plattville
228 Neppanee
235 Bryce
238 Rantoul
298 Beecher
314 Joliet
317 Millsdale
320 Frankfort
321 DuPage
326 Homer
329 Will
330 Peotone
365 Aptakisic

when slope is in excess of 15%

25 Hennepin
27 Miami
60 LaRose
88 Sparta
90 Plainfield
93 Rodman
131 Alvin
134 Camden
194 Morley
223 Varna
224 Strawn
241 Chatsworth
311 Ritchey
315 Channahon
318 Lorenzo
325 Dresden
327 Fox
531 Markhem
696 Grays

VI. Topsoil source suitability-soil/vegetation relationships.

Finally we have included a list of the suitability of soils as a source of topsoil for all soils in the County,⁹ Following this we've repeated the list with only soils suited for forest growth. These groupings give an indication of the vegetation types needed to reforest a particular soil, because vegetation types vary by quality of soil.

VI. Topsoil Source Suitability

GOOD

59 Lisbon
73 Huntsville
80 Proctor
102 LaHogue
149 Brenton
151 Ridgeville
184 Roby
189 Martinton
197 Troxel
293 Andres
321 DuPage
451 Lawson

FAIR-GOOD

145 Saybrook
146 Elliot
148 Proctor
157 Rankin
194 Morley
196 Harpster
240 Plattville
290 Warsaw
294 Symerton
295 Mokena
343 Kane
442 Mundelein
443 Barrington

FAIR

23 Blount
27 Miami
60 LaRose
62 Herbert
91 Swygert
131 Alvin
132 Starks
134 Camden
190 Onarga
192 DelRay
219 Millbrook
220 Plattville
223 Varna
298 Beecher
320 Frankfort
325 Dresden
326 Homer
327 Fox
329 Will
365 Aptakisic

503 Rockton
531 Markhem
697 Wauconda
698 Grays

POOR-FAIR

194 Morley
311 Ritchey
696 Zurich

POOR

20 Roby
25 Hennepin
49 Watseka
53 Bloomfield
54 Plainfield
67 Harpster
69 Milford
82 Millington
88 Sparta
89 Maunee
90 Plainfield
93 Rodman
98 Ade
103 Houghton
107 Sawmill
130 Pittwood
152 Drummer
201 Gilford
206 Thorp
210 Lena
224 Strawn
228 Neppanee
232 Ashkum
235 Bryce
238 Rantoul
241 Chatsworth
270 Oquawka
300 Abington
313 Rodman
314 Joliet
315 Channahon
316 Romeo
317 Millsdale
318 Lorenzo
330 Peotone
347 Canisteo
441 Monee
504 Sogn

Soil/Vegetation Types for Ideal Forest Soils

always ideal soils

GOOD

151 Ridgeville
184 Roby
321 DuPage

FAIR-GOOD

146 Elliot

FAIR

23 Blount
91 Swygert
192 DelRay
220 Plattville
298 Beecher
320 Frankfort
326 Homer
329 Will
365 Aptakisic

POOR

49 Watseka
89 Maumee
130 Pittwood
201 Gilford
210 Lena
228 Neppanee
235 Bryce
238 Rantoul
314 Joliet
317 Millsdale
330 Peotone

+15% ideal soils

FAIR-GOOD

194 Morley

FAIR

27 Miami
60 LaRose
131 Alvin
134 Camden
223 Varna
325 Dresden
327 Fox
531 Markhem

POOR-FAIR

311 Ritchey
696 Zurich

POOR

25 Hennepin
88 Sparta
90 Plainfield
93 Rodman
224 Strawn
241 Chatsworth
315 Channahon
318 Lorenzo

VII. Conclusion

With all this information The Forest Preserve District can identify areas best suited for agriculture, for other uses, and for forest (even particular types of forests)-all according to the soils found in the area being considered or studied.

FOOTNOTES

- ¹ Soil Survey: Champaign-Urbana Area, Illinois, J.D. Alexander, J.B. Fehrenbacher, et. al., University of Illinois Department of Agronomy, Soil Conservation Service, U.S. Dept. of Agriculture, 1974, p. 22.
- ² Resource Study of Northeastern Illinois, Soil Conservation Seervice, Illinois Area 2, 1967, pp. 4-6.
- ³ Ibid., pp. 7-8.
- ⁴ Productivity of Illinois Soils, R.T. Odell, University of Illinois College of Agriculture Cooperative Extension Service, Circular 1016, 1970, pp. 9-11 & 13-17.
- ⁵ Prime Agricultural Land in Illinois, J.B. Fehrenbacher, reprinted from Illinois Research, University of Illinois Agricultural Experiment Station, Fall, 1974, Vol. 16, No. 4, pp. 14-15.
- ⁶ Will County Soil Manual, Will County Regional Planning Commission, June, 1975, appendix.
- ⁷ Ibid., appendix.
- ⁸ Ibid., appendix.
- ⁹ Ibid., appendix.

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WILL COUNTY WILDLIFE RESOURCE DATA

LA 337 Regional Design

Doug Johnson and

Mike Driscoll

INTRODUCTION: THE WILDLIFE PICTURE

An important part in the formation of any county preserve system is an adequate understanding of those significant types of natural features that exist there, such as terrestrial and aquatic wildlife.

It is often difficult for urban residents to recognize that they share the ecological vulnerability of existing wildlife and vegetation in all corners of their county. The complex web of plants and animal life in and near urban areas is valuable both in its own right and for its environmental, scientific, educational, and esthetic benefits for all the people of Will County, the State, and the Country now and in future decades to come.

As Will County continues to urbanize rapidly the increasing population will have more leisure time, increased wealth and mobility within the county itself. It should become immediately evident then, that the purpose of a county-wide preserve system should concern itself with protecting natural wildlife ranges or remnants, rare and existing native animal species, and also to provide those increasing numbers of urbanites within the county and those surrounding Will County with access to those areas.

RATING

In generally appraising the condition and extent of intact wildlife ranges, species diversity, and existing fauna numbers, the county would have to receive a medium to low rating, with some important exceptions.

While Will County retains some very special indigenous fauna populations, found only in limited numbers elsewhere in the state, urban population migration and expansion from the continued decentralization of the Chicago metro area

have bloomed at the expense of a majority of wildlife inhabitants in the northern portion of the county. Manufacturing and heavy industrial growth have helped deplete the native fauna numbers and have exterminated countless others over the years though pollution and disruption of various wildlife habitats and food sources, thus contributing to the medium to low rating, county-wide.

But small areas in a variety of scattered locations throughout the southern portion of the county, retain high ratings. The natural integrity of various stream corridors connected to the Kankakee River, the Des Plaines Conservation Area, and small tracts of Will County Forest Preserve District land, have excellent water quality, food and cover for large numbers of native aquatic and terrestrial fauna.

Harvestable game species in the southern agricultural portion of the county also receive high ratings in current years.

MAJOR WILDLIFE ZONES AND DIVISIONS OF WILL COUNTY

NORTHEASTERN MORAINAL DIVISION

Roughly about one half of Will County falls within the southern-most fringes of the Northeastern Morainal Division. (Established by the Illinois Natural Preserve Commission of Illinois.) This division corresponds to the Manhattan-Volparso Moraine system which rambles in an almost direct line northwest to southeast in the northeastern portion of the county exclusively.

Briefly, the Northeastern Morainal Division is that region of most recent glaciation in Illinois. Glacial landforms are common features and are responsible for the rough topography and relief so uncharacteristic of Illinois.

A variety of plant communities once provided exclusive wildlife habitats for several species of animals known here and nowhere else in Illinois. Large patches of forest were

in evidence and in presettlement days part of this portion of county was roughly 60% prairie as well.

Before 1850, approximately, a majority of the aquatic wildlife habitats were contained primarily in this part of the county. Pans, marches, sedge meadows, and bogs were in evidence. These water areas once afforded a habitat which supported many species of wading and shore-line birds, such as ducks, geese, marsh wrens, and other birds requiring water related cover and protection. Also the county's small population of mallard and teal ducks were known to have nested here at one time. Swans and possibly even cranes were suspected here also.

Many aquatic fur-bearing animals once proliferated in these areas of distinctive water character. Muskrats, mink, raccoon, and beaver were residents which fed along the margins of these water areas and on adjacent prairie lands. The county deer population, now virtually non-existent, once was well established here.

Waterfowl passing through Will County from Northern Canada via the Mid America fly way, frequently nested here and were hunted. But large bodies of water are not sufficiently in evidence at this time to provide food and protection to attract large numbers. An appreciable number of wood ducks have been found nesting in these areas also.

Farm related wildlife and game are found in this portion of Will County as well. Large populations of rabbit, fox, badger, skunk, raccoon, weasel, opossum, and gophers are reported in abundance. Some land oriented birds included in this area once in sizable numbers, were quail, pheasant, woodcock, and dove.

This area more than any other in Will County has felt the urban advance and expansion from the Chicago metro area and the Joliet area most heavily. These urban advances have caused large scale destruction, wide spread pollution, and virtual extermination of many species. The loss of native

habitat, food, and protective cover are the ultimate end results. Steady migrations of the remaining wildlife are expected to follow past trends of previous species to the South and West, to escape the on slaught of those growing urban areas.

GRAND PRAIRIE DIVISION

The remaining half of Will County is included in the Grand Prairie Division including most of Central Illinois (established by Illinois Natural Preserve Commission) specifically the Kankakee Plain, a northeastern sub-region of this major area. This division encompasses that area West and South of the ValParso and Manhattan morains system to the counties borders.

As probably on the more abundant formally "natural" features of the state, this vast plain was occupied primarily by tall-grass prairie vegetation and related association. Forests still border the views and ravines in this area of the county. In the recent past occasional tree groves on the Val Parso and Manhattan morains were prominent.

At one time as in other sections of the Grand Prairie, bison grazed and water fowl occupied marshes and potholes in Will County. Consequently technology reached the prairies in the form of the steel plow, ditches, till lines, and a new awareness that the prairie was vastly more fertile for growing various crops than forests soil. The bison then vanished, the abundant waterfowl moved out of the area and other characteristic species of the area disappeared or became scarce. The Grand Prairie legacy, "... once seemingly limitless is now one of the rarest plant communities in Illinois, with only pitifully small and often degraded patches remaining."¹

This former prairie area is now farmed and cropped extensively. Cropping practices have drastically changed and altered its natural appearance and function considerably in Will County. Previously, general farms were less intensively cultivated and included a variety of crops and harvest refuse beneficial as feed for the game. Horse drawn mowers of the past now have been replaced by high powered tractors, combines and harvestors. These changes as well as many other neglected farming practices have reduced the availability of feed as well as safe nesting places for existing wildlife.

Even though new agricultural modifications and pressures seem to be threatening the existence of pheasant, quail, rabbit, squirrel, snipe, woodcock, fox, badger, raccoon, weasel, opossum, gopher, and woodchuck. Their numbers are in fact stable and remain high compared to other counties throughout the state, where natural areas, food and cover are more abundant. This phenomenon may be due in part for a number of reasons; (1) the in migration of wildlife and harvestable game from other areas of the county, specifically the north and northeastern half of the county, where the urban pressures, each of food and cover and polluted habitats, make existence there impossible, or difficult; (2) the largely rural character of this part of the county makes an attractive home for these displaced and existing fauna; (3) stocking and conscious management practices on the part of farmer, hunter, and interest groups have improved natural breeding stock and provided food and shelter for those species. (4) less intensive hunting though recent years has let species number increase; (5) and other unrecordable factors. However, this stability, migration trends and even proliferation on the part of some species has not been exhibited or extended to all former inhabitants. The bobcat, lynx, and coyote are no longer found in Will County.

DRAINAGE SYSTEMS AND WILDLIFE ASSOCIATIONS

Water resources are extremely valuable for scenic, recreational, and wildlife biomes, rivers, and streams, can be so easily destroyed by the encroachment of industry, urban development, channelization, flood control projects, and the like. Yet the natural preservation of these same aquatic corridors and wildlife habitats are much more difficult to actually achieve and/or maintain.

Will County, then, possesses within its boundaries two river and stream systems which contrast directly in natural habit and disrupted conditions-- the Kankakee River, and stream systems, and the Kankakee River and stream systems.

THE DES PLAINES RIVER BASIN AND TRIBUTARIES

The Des Plaines River (including the Du Page River, Salt Creek, Spring Creek, Hickory Creek, and Jackson Creek)-- Rating: poor, fish species present : 63 (out of 200+ possible, associated semi-aquatic and terrestrial species present -- low.² The main river body itself, and a majority of its tributaries, are domestically and industrially polluted heavily. Extensive modification of the major rivers, some stream courses (Chicago Sanitary and Ship Canal, and Illinois-Michigan Canal), and the original wildlife habitats associated with distinctive vegetation types, has been widely occurring

for years. It is remarkable that so many streams still contain fish. Jackson Creek still has good aquatic and terrestrial diversity however, but Hickory Creek is the outstanding stream in this system. It contains populations of such unusual fish species as the northern hognose sucker, rosy face shiner, and slender madtom as well as abundant numbers of game species such as sunfish, crappies, pumpkinseed, northern pike, large mouth bass, yellow bullhead, redbfin shiner, bluegill and perch as well. The presence of these species indicates the excellent water quality of these streams.

Only 40 miles of the Des Plaines River flow in a southerly direction through Will County. The extent of the river and its stream tributaries cover a much broader area however. Cook County, ^{Lake Co and} Kenosha County, Wisconsin are drained by the Des Plaines drainage basin.

In presettlement days this route provided wildlife in the northern portion of Illinois and southern Wisconsin with easy access to the Illinois River valley, the Grand prairie area and beyond. Tremendous quantities of food and excellent cover prevailed in the river and stream edges and beyond in varying widths in floodplain areas, valleys, and ravines. Duck, geese, swan, crane, marsh wren, mallards, teal, wood duck, and other indigenous birds were present in great numbers throughout the Des Plaines River course. Sizable numbers were concentrated in Will county along wide stretches of the river before it joined the Kankakee to form the Illinois

river. Also muskrat, beaver, mink, raccoon, fox, squirrel, lynx, and deer found food and cover in great abundance and they multiplied in great numbers.

Now, however, the situation has drastically changed. The Des Plaines River and some of its tributaries not only flow through the major urban areas of Will County, namely Joliet, but also one of the most polluted sections of mid America - the Chicago metro area. The consequences seem self-explanatory. The "natural" condition of the Des Plaines River and stream system (except for those previously cited examples) is now characterized by a silty-sludge bottom, a septic odor, low oxygen levels, heavy algal blooms in the summer months, numerous locks and dams, canals and impoundments, frequent channelization and periodic dredging, numerous industrial and domestic pollutants, vegetation removal and alteration of natural river associations. In general, poor water conditions exist. As the water quality was reduced native fish were destroyed and replaced by inferior species. And as the vegetation, food sources, and protection cover for terrestrial mammals, reptiles, amphibians, and birds were destroyed and altered, they too either perished or moved out of the area. Now only a vestigial number of representative species linger in the 40 mile portion of the Des Plaines River and its tributaries in Will County.

KANKAKEE RIVER BASIN AND TRIBUTARIES

The Kankakee River System (including Prairie Creek, Forked Creek - South Branch, Horse Creek - North and South Branch, Rock Creek, Deer Creek, Trim Creek and numerous sloughs and drainage ditches in marshes and sand areas) Rating: excellent, Fish species present: 72-, associated semi-aquatic and terrestrial species present: very high.³ This river and stream basin exhibits outstanding water quality in nearly all its tributaries and even exhibits those characteristics in the 20 mile portion of the Kankakee that flows across the southwestern corner of the county. This condition can be

attributed to a number of reasons: (1) The Kankakee River and its tributaries do not flow through any large metropolitan areas or heavily industrial zones that could contribute toxic pollutants and domestic waste; (2) Those numerous streams in the southern portion of the county flow in a south westerly direction away from the Manhattan and Val Parso Moraines in their journey to the Kankakee through areas of exclusive agricultural usage that are virtually pollutant free (even though fertilizer usage may contaminate these streams, samples taken in 1967 show only minute traces); (3) These streams are shallow compared to the Des Plaines River and its tributaries and consequently are unfavorable for a large amount of disruptive barge traffic; (4) Due to this rather shallow condition, large scale stream modification, channelization, dredging, and so on have been present but not as extensive as in counties of low relief where drainage is a problem; (5) Vegetation bordering stream flood plains, drainage corridors and ravines have remained intact and limited wildlife habitats here correspond specifically to vegetation types along these streams. (a) In open areas, where sunshine reaches the water, growths of button bush, rose mallow, water willow and a few other plants provide homes for frogs, turtles, small mammals and fish. (b) Grasses, sedges, ragweeds, milkweeds, dock and several composites along small streams passing through flat and open farmlands abound with rabbit, quail, pheasant, fox, mice, raccoon, moles, shrews, and numerous bird and fish species. (c) In some reaches of these streams willows and scrubby growths of a few other deciduous trees overhang the water. Turtles, frogs, snakes, bats, opossums, rabbits, squirrels, and substantial song bird populations and game fish are abundant. (d) Tall trees such as silver maple, sugar, maple, cottonwood, sycamore, elm, white oaks, and some upland trees and understory association line banks

of most large streams. All the animals representatives in the previously mentioned habitats and possibly deer are found here.

The unique character or often "natural" status of many of the streams associated with the Kankakee River in the southern portion of Will County, would seem to indicate the possibility of instituting preservation corridors. Further more specific locational studies of these streams, their vegetation, water quality, wildlife types, availability and food sources would be necessary. However, the potential for such a natural corridor system should not be ignored in future planning proposals and alternative design schemes.

SPECIFIC WILDLIFE HABITATS AND NOTED VARIETIES

FARMLAND WILDLIFE

Typical locations for farmland wildlife in Will county are open fields, meadows, pastures, thickets, hedgerows, brushy abandoned fields, and edges of woodland. The most evident kinds of farm game (mammals) found in these areas are the cottontail, rabbit, pocket gopher, skunk, red fox, woodchuck, little brown bat, thirteen-lined ground squirrel, least shrew, prairie vole, and the deer mouse. Also there are numerous above ground creatures such as birds. The most typical birds found in this area are the starling, house sparrow, horned lark, redwinged blackbird, meadow lark, common grackle, bobolink, and pheasant. The birds tend to be found in trees, small shrubs, fences, and a great majority of them can be found in the few hedgerows now in existence in Will County. These hedgerows, and shrub edges may have higher population densities of birds than any other form of habitat found. It may be necessary to recreate some of these hedgerows and shrub areas in order to maintain the variety and density of the avifauna now evident in these few remaining areas.

TIMBER WILDLIFE

The timber wildlife of Will County goes much farther than the eye can perceive. Underneath the forest floor are mammals such as shrews, moles, and voles, while above exists such mammals as skunks, raccoons, foxes, opossums, chipmunks, and white-footed mice. Other mammals include deer, silver-haired bats, fox squirrels, gray fox, and flying squirrels. Also the most predominant timber birds are the starlings, Eastern wood Pewees, housewrens, blue jays, Indigo buntings, and robins. The timber environment then offers a great variety of habitats for numerous mammal and bird species.

The timber environments also offer a greater diversity of wildlife and the greater the area of these environmental types, the greater the density of wildlife. Therefore, it is quite necessary to preserve what timber area now exists, and provide a means of increasing the amount of timber area in order to efficiently maintain the original diversity of wildlife.

AQUATIC WILDLIFE

Aquatic wildlife areas may best be described as open water areas, such as lakes, rivers, or streams, marshes, ponds, sloughs, and swamps. These areas usually contain mammals such as the golden mouse, raccoon, mink, beaver, muskrat, cotton mouse, swamp rabbit, and the rice rat. The beaver and muskrat build their homes in the water where the remaining mammals live around the aquatic areas, feeding along the margin of the water areas or surrounding agricultural land. The redwinged blackbird, mourning dove, bobolink, and some pheasant are also evident in these areas. The most common amphibians and reptiles in these aquatic areas are salamanders, frogs, toads, turtles, lizards, and a good number of snakes.

Beside these existing aquatic wildlife species waterfowl also pass through Will County during the fall and spring migrations, There are some streams and farm ponds in the

in the county that are inhabited by geese and ducks, but these are just periodically because these bodies of water do not usually provide enough protection and food to attract large number of geese and ducks. The migration routes include the Dabbling Duck route in which a moderate amount of ducks pass through Will County, the Diving Duck route which consists of a large amount of ducks, the Canada Geese route is a moderate size, and the Blue and Snow Geese route which is light in the summer. Large number of geese pass over during their fall migration. Preservation of large protected water areas with a generous amount of food could encourage greater areas to be inhabited by these ducks and geese.

ENDANGERED SPECIES OF THE COUNTY

A very significant finding in Will County is that it has some very rare and endangered species of wildlife. It has been found that the blacknose shiner (fish), spotted turtle (reptile), and the blue spotted warbler (bird), are all very rare.⁴ They are contained in swamps, and marshes, which are distinctive ecological habitats for a number of these species. But not only does Will County contain many endangered species, but the county also has many semi-endangered species that are primarily located in Will County, and are located in only a few other areas statewide. These semi-endangered species are Wilson Phalarope (Bird) (found in a few areas in Will County along the Des Plaines River), Canada Warbler, long eared owl (found around swamps), Brown Creeper (found in bottomlands), Morning Warbler (found along the Des Plaines River), the pigmy shrew (found along the Calumet River), the Plains Pocket Gopher (found on Kakakee tributaries), the blue spotted salamander, and the spotted turtle. These semi-endangered wildlife apparently can only be found in Illinois and primarily in Will County which gives the county's wildlife some definite uniqueness.

HUNTING RESOURCES

Most of the hunting activities in Will County are confined to private farm lands where the hunter gets the permission of the landowner.

The hunting trend of Will County decreased at the time the Federal Gun Control was enforced, but in the recent years it is gradually increasing once again.

Game kill surveys conducted in Will County by the State Department of Conservation show that Will County, as compared to the other 102 counties in Illinois, ranks very high in the harvest of pheasants (ranked 5th), muskrats (ranked 16th), doves (ranked 21st), and more modest quantities of cottontail rabbits. Among the other counties, however, Will County ranks one of the lowest in harvest of bobwhite and squirrel.

Among the many types of wildlife harvested in Will County are pheasant, white-tail deer, cottontail rabbits, woodcock, and waterfowl. The pocket gopher is quite abundant in this county in pastures and roadsides. This animal can cause severe damage to alfalfa and clover crops. The presence of this small animal can be detected by the mounds of dirt above ground which it has dug from its burrows beneath the ground surface.

The fox squirrel is the most frequently killed squirrel in Will County, because of its vast tolerance of wildlife habitats throughout the county. It can be found most frequently in open woodlots/pastures situation while other species of squirrels are most likely to be found in wooded areas with heavy underbrush.

As farming became more intensive and extensive over the decades, and as human population increased, the killing of deer occurred more frequently here. The deer populations diminished until about 1915 when no deer were left in Will County. Restocking of white-tailed deer since that time, in this portion of the county has been a slow process. Again, in-migration of deer from the northern portion of the county, from nearby counties, and Indiana has largely accounted for the reappearance, in small numbers of deer in Will County.

TRAPPING

Trapping in Will County is moderate as determined by the price of furs each year. Naturally during a year where prices are higher, the trapping will also increase some. Muskrats are the most trapped animals along with some sizable numbers of minks, raccoons, and opossum. The beaver is also trapped, but the recent low fur prices for beaver have significantly discouraged heavy trappings. At one time in the county's recent history, beaver had virtually been exterminated. But in 1935 the Department of Conservation released beavers within the state and along with in-migration from surrounding counties and states the beaver population has increased though they are still relatively scarce.

Strip mine areas offer potential habitats for travelable mammals, and upland game species such as deer, pheasant and rabbits. Reclamation of strip mine areas could offer new habitats for these animals along with the return of some bird species when vegetation begins to establish itself.

FISHING

The trend of recreational fishing in Will County is beginning to raise once again. Fishing licenses issued were down 40% in 1957 through 1967, but the number of licenses being sold now is gradually beginning to increase.

Fishing is most prominent in rivers and lakes while fishing on streams is decreasing because of pollution and difficult accessibility to streams. Some streams and the Des Plaines River are now primarily inhabited only by species of fish that are tolerant of silt and sewage. Such fish found in the Des Plaines River are goldfish, golfish-carp hybrids, and green sunfish. Even to find these fish is remarkable due to the domestic and industrial pollution.

Other fish found in Will County are: carp, black crappie, bluntnose minnow, pumpkinseed sunfish, northern pike, largemouth bass, yellow bullhead, redfin shiner, white crappie, bluegill, and yellow perch. (Additional species

can be found in the attached list of Will County wildlife.)

EFFECTS OF FARMING PRACTICES ON WILDLIFE

As stated earlier, modern farm technology has been increasingly changing the face of many farm operations. This condition has been brought about by increased production costs, labor shortages, high machinery cost, fuel shortages, tremendous fertilizer expenses and high land taxes and prices.

In recent years reduced pasture areas and decreased hay and oat production have reduced the amount of wildlife cover all over Will County. Other recent trends include: (1) more wide spread weed control in field and field edges; (2) large field sizes at the expense of hedgerows and field fences; (3) fall plowing practices; (4) gigantic monoculture crop fields; (5) earlier more expedient and efficient harvests; (6) close mowing of roadside grasses and weeds; (7) improved roads and more intensively used highways; (8) and clean farm appearance have caused wildlife to lose food, cover and nesting places during all seasons of the year and have made winter existence a real hardship for some species.

Also artificial drainage systems of farms have had a detrimental effect on the existence of wildlife as well. Open ditches and tilling systems have been extensively used to improving farming efficiency and productivity but have caused the destruction of wet areas and the elimination of trees and shrubs that have stifled fish and wildlife population.

Even though some game species associated with these agricultural areas still remain high in Will County, these trends could sharply begin to change if current farming practices continue to reduce wildlife food, cover, and nesting areas.

It may be recommended for example to reintroduce, on a limited scale, certain grain varieties and legumes on field edges that are now used strictly as heavy machinery turnabouts. Also transition strips between crop fields and woodland, only 10' wide, could be developed as habitable zones for a tremendous number of wildlife and game species.

As critical fuel shortage and prices become more acute permitting fewer trips in and out of fields, it seems highly feasible to leave some areas of crops residue and stubble stand. Also as county farmers become even more specialized in their raising monoculture crops of corn and soybeans and less specialized in their raising of livestock and other less productive cash crops, it could be determined useful for these reasons to leave fall harvest residue and stubble in the fields, throughout the winter. In this way soil productivity could be increased by less depletion of soil minerals and nutrients through the removal of crop vegetable matter for silage. Also less farm capital would have to be appropriated each spring to insure bountiful harvests. This field residue and stubble, then would insure farm wildlife and various game species with adequate food and cover throughout the late fall, winter and early spring months. Therefore, aiding in winter survival rates and in species proliferation throughout the county.

MANAGEMENT OF WILDLIFE IN WILL COUNTY

Three key words keep reappearing throughout the context of this wildlife report - food, water, and cover. It's quite obvious that the various indigenous bird, mammal, reptile amphibian and fish population throughout the county all have an incredible diversity of food, water and cover requirements. Even though it would be virtually impossible and unrealistic to fulfill all those requirements for the

respective fauna that exist in Will County, it is important to remember that these animal requirements do exist, are quite specific and vitally important to fauna in question.

It is important to remember also that these requirements are vital in the formation of a county-wide wildlife program which should contain the following simple program planning elements:

1. Careful management of food, water, and cover is fundamental to the existence of all the Will County fauna.

2. Also, native or characteristic habitats of wildlife throughout the county, should be further determined, their extents estimated, and their fulfilling character to the native animal populations examined closely.

3. Common stocking and reintroduction of various species should only take place if original fauna numbers have been heavily depleted through hunting, and only if food, cover, and water exist in sufficient quantities (with other associated factors involved) to support those inhabitants.

4. Habitat improvement and protection are mandatory to the survival of all existing animal species of the county. Wildlife in general can only begin to reappear in large numbers if their former habitats are: a. clean b. well supplied with natural food sources c. ample quantities of unpolluted water are present d. large enough in character to supply those inhabitants with adequate space for their natural activities without the disruptive encroachment of urban areas, industrial development, etc.

5. Strict enforcement of hunting rules and regulations on the limitation of such practices should be initiated to help stimulate wildlife numbers to multiply for time.

6. Formulation of criteria for the determination of preserve and conservation land should be devised.

7. Existing preserves, refuges and future related land acquisition and conservation projects should be analyzed for their fulfillment of animal needs and requirements when planning for countrywide land use policies.

8. Any planning practices or programs that are undertaken by the county should be feasible and practical in design making.

9. Local, state and federal agencies should be consulted during many levels of the design and planning process for this specific purpose of inquiring what guidelines, legislation, and funds exist and are available for the implementation of county wildlife programs.

10. Numerous private and semi-private groups should be determined and contacted for their information research publications, offered planning and consulting services, and program eligibility that pertain to county wildlife preservation.

RECOMMENDED WILDLIFE PROGRAMS ⁵

Land use trends, modern practices, and decimating factors are all detrimental effects on wildlife and are often complicated by public misunderstanding and apathy. For too long, habitual adherence to the dictates of the profit motive has resulted in indifference to wildlife preservation. This situation only intensifies the need for a sound program of wildlife conservation.

It is recommended that a countrywide program be developed and follow these recommendations:

1. To preserve adequate samples of all natural land types occurring in this county.

2. To preserve natural areas in all portions of the county.

3. To preserve unique and outstanding natural areas.

4. To preserve wilderness remnants.

5. To preserve habitats for rare and endangered species of plants and animals.

6. To provide perpetual protection for nature preserves against external intrusions.

7. To provide management of nature preserves which will assure their perpetual maintenance as nearly as may be in their natural condition.

8. To provide for the accumulation of knowledge concerning features and conditions within nature preserves.

9. To allow and facilitate the conduct of research studies in nature preserves in such manner and to such degree as will not modify natural conditions.

10. To allow and facilitate the visiting of nature preserves for purposes of observation and study for education and pleasure in such manner and to such degree as will not modify natural conditions.

11. To provide for the interpretation of nature preserves to visitors to enhance their understanding and enjoyment.

Illinois Portion

Fishes known to occur in the Des Plaines Watershed in Lake County are (Muench 1968; Tichacek and Wight 1972):

Bowfin	Northern pike
White sucker	Blackstripe topminnow
Carp	Pirate perch
Golden shiner	White bass
Redfin shiner	Yellow bass
Blackchin shiner	Walleye
Spotfin shiner	Johnny darter
Sand shiner	Smallmouth bass
Fathead minnow	Largemouth bass
Bluntnose minnow	Green sunfish
Channel catfish	Pumpkinseed sunfish
Black bullhead	Bluegill
Yellow bullhead	Redear sunfish
Stonecat madtom	Rock bass
Tadpole madtom	White crappie
Central mudminnow	Black crappie
Grass pickerel	Brook stickleback

Fishes known to occur in the Des Plaines River Watershed in Cook County are (Harry Wight, Ill. Dept. Cons., pers. comm.):

Rainbow trout*	Northern pike
White sucker	Yellow bass
Carp	Yellow perch
Goldfish	Walleye
Creek chub	Largemouth bass
Golden shiner	Green sunfish
Emerald shiner	Pumpkinseed sunfish
Redfin shiner	Bluegill
Bigmouth shiner	White crappie
Bluntnose minnow	Black crappie
Stoneroller	Fathead minnow
Channel catfish	
Black bullhead	
Yellow bullhead	
Central mudminnow	

*Stocked

Wildlife

Listed below are amphibians, reptiles, birds and mammals known to be or likely to be found in the Des Plaines River watershed. Preferred habitats of species occurring in Illinois are included. Animals in the list that are included in the Illinois Nature Preserves list of Rare and Endangered Vertebrates of Illinois are identified by footnotes.

The bird list was provided for the Cook County portion of the watershed by Peter Dring, Little Red School Nature Center, Cook County Forest Preserve District and for the Lake County portion by Charles Clark, Des Plaines, Illinois. Birds listed are those breeding in the area. Many other birds migrate through or are residents at other times of the year. Waterfowl using migration corridors that pass through the area include 600,000 mallards; 35,000 baldpates; 25,000 pintails; 100,000 black ducks; 280,000 scaup; 117,000 ring-necked ducks; 160,000 Canada geese; and 9,000 snow geese.

The list of animals occurring in the Wisconsin portion of the watershed is taken from: "Fish and Wildlife Resource Inventory, Des Plaines Watershed, Kenosha and Racine Counties, Wisconsin" (Stricker et al. 1972).

Key to Preferred Habitats

- A. Open water on lakes or rivers
- B. Ponds or sloughs
- C. Shores or lakes, ponds or rivers
- D. Marshes (not wooded)
- E. Swamps (wet, wooded land)
- F. Bogs
- G. Open fields, meadows, pastures
- H. Thicket, hedgerows, edges of woods, brushy abandoned fields
- I. Woods
- J. Parks, cemeteries, farms, orchards
- K. Urban and suburban areas
- L. Sand areas and hill prairies

Illinois Portion - Des Plaines Watershed

Amphibians

	<u>Habitat</u>
Blue-spotted salamander ^{1/}	E
Spotted salamander	H
Eastern tiger salamander	FH-J
Central newt	BH
Four-toed salamander ^{1/}	K
Red-backed salamander ^{3/}	H
Mud puppy	A
American toad	F-I
Fowler's toad	CL
Blanchard's cricket frog	BD
Western chorus frog	F
Northern spring peeper	H
Eastern gray treefrog	H
Bullfrog	CD
Green frog	CD
Pickerel frog	BCE
Leopard frog	C
Eastern woodfrog ^{1/}	H

Reptiles

	<u>Habitat</u>
Common snapping turtle	ABD
Musk turtle	AB
Blandings turtle	AB
Painted turtle	AB
False map turtle ^{4/}	A
Map turtle ^{4/}	A
Eastern spring softshell	AB
Western slender glass lizard ^{1/}	F
Six-lined racerunner	L
Five-lined skink ^{4/}	GHJ
Eastern hognose snake	GH
Western smooth green snake	FIJ
Western fox snake	F
Eastern milk snake	H
Western ribbon snake ^{3/}	CDE
Eastern plains garter snake	FJ
Chicago garter snake	G
DeKay's snake	GI
Northern red-bellied snake	FGH
Graham's water snake	ABD
Kirtland water snake	BJ
Queen snake	AH
Northern water snake	AC
Eastern massasauga ^{3/}	DFK

Birds

Pied-billed grebe	ABD
Great blue heron	B-E
Green heron	B-E
Black-crowned night heron ^{1/}	B-E
Yellow-crowned night heron ^{3/}	B-E
Least bittern ^{3/}	B-D
American bittern ^{1/}	B-D
Canada goose ^{3/}	A-DG
Mallard	A-E
Blue-winged teal	A-E
Northern shoveler	B-E
Wood duck	A-EI
Coopers hawk ^{2/}	HI
Red-tailed hawk	GHJ
Red-shouldered hawk ^{2/}	EHI
Broad-winged hawk	HI
Marsh hawk ^{1/}	DGHJL
American kestrel	GHJK
Bobwhite ^{4/}	G-J
Ring-necked pheasant	DGHJL
King rail ^{3/}	CD

Birds

	<u>Habitat</u>
Virginia rail ^{3/}	CD
Sora	CD
Common gallinule ^{3/}	B-D
American coot	A-E
Killdeer	CGJKL
American woodcock	CHIJ
Upland sandpiper ^{2/} ✓	G
Spotted sandpiper ^{4/}	BC
Black tern ^{4/}	ACD
Rock dove	GJK
Mourning dove	CG-K
Yellow-billed cuckoo	H-K
Black-billed cuckoo	H-K
Barn owl ^{1/} ✓	GJK
Great horned owl ^{3/}	EH-J
Screech owl	EG-K
Barred owl ^{3/}	EHI
Long-eared owl ^{1/} ✓	I
Short-eared owl ^{1/} ✓	DGJ
Whip-poor-will	EG-J
Common nighthawk	G-K
Chimney swift	ACDG-K
Ruby-throated hummingbird	HIJK
Belted kingfisher	BCDGJ
Common flicker	EG-K
Red-bellied woodpecker	HJ
Red-headed woodpecker	EG-K
Hairy woodpecker	EH-J
Downy woodpecker	EH-K
Eastern kingbird	CDEGH
Great crested flycatcher	EH-K
Eastern phoebe ^{4/}	CEG-K
Acadian flycatcher	EHJ
Traill's flycatcher	EHJ
Least flycatcher	CH
Eastern wood pewee	EHIJ
Horned lark	GJK
Tree swallow	BCDG
Bank swallow	CBD
Rough-winged swallow	A-J
Barn swallow	A-K
Purple martin	BCDGJK
Blue jay	EG-K
Common crow	C-K
Black-capped chickadee	EH-K
Tufted titmouse	HIJ
White-breasted nuthatch	EH-K
House wren	EH-K

Birds

	<u>Habitat</u>
Carolina wren ^{3/}	H-J
Long-billed marsh wren	B-D
Short-billed marsh wren ^{4/}	B-D
Gray catbird	H-J
Brown thrasher	G-K
American robin	EH-K
Wood thrush	I
Veery ^{1/}	HI
Eastern bluebird ^{4/}	G-J
Blue-gray gnatcatcher	H-J
Cedar waxwing	H-K
Northern shrike ^{4/}	GHJ
Starling	GHJK
Bell's vireo ^{3/}	H-J
Yellow-throated vireo	H-J
Philadelphia vireo	H-J
Warbling vireo	H-J
Golden-winged warbler ^{3/}	H
Prothonotary warbler	CE
Blue-winged warbler ^{4/}	EI
Yellow warbler	GHJ
Cerulean warbler	I
Chestnut-sided warbler	D-K
Ovenbird	HI
Common yellowthroat	GHJ
Mourning warbler ^{3/}	H
Yellow-breasted chat ^{3/}	H-J
Hooded warbler ^{3/}	EI
Canada warbler ^{3/}	I
American redstart	C-K
House sparrow	CGHJK
Bobolink	DGJL
Eastern meadowlark	GJ
Western meadowlark	GJ
Yellow-headed blackbird ^{3/}	D
Red-winged blackbird	CDG
Orchard oriole ^{4/}	HJK
Northern oriole	HJK
Brewer's blackbird ^{1/}	G
Common grackle	EGHJK
Brown-headed cowbird	DEGHJK
Scarlet tanager ^{4/}	H-J
Cardinal	H-K
Rose-breasted grosbeak	H-K
Indigo bunting	GH-K
Dickcissel	G
American goldfinch	GH-J
Red-eyed vireo	HJK

Birds

Habitat

Rufous-sided towhee	H-J
Savannah sparrow	GH
Grasshopper sparrow	H
Henslow's sparrow ^{3/}	DG
Vesper sparrow	GH
Chipping sparrow	GJK
Field sparrow	GJL
Swamp sparrow	DJ
Song sparrow	EGHJK

Mammals

Opossum	G-K
Eastern mole	G-K
Masked shrew ^{3/}	HI
Pigmy shrew ^{1/}	HI
Short-tailed shrew	GHI
Least shrew ^{3/}	GH
Little brown bat	I-K
Keen's bat ^{3/}	H-K
Silver-haired bat	I
Big brown bat	G-K
Hoary bat ^{3/}	I
Red bat	HI
Evening bat	H-K
Raccoon	C-J
Least weasel	GHJ
Long-tailed weasel	HJ
Mink	C-EI
Striped skunk	G-J
Badger ^{3/}	G
Red fox	G-J
Gray fox ^{3/}	HI
Coyote ^{3/}	GH
Woodchuck	H
Thirteen-lined ground squirrel	GJ
Franklin's ground squirrel	GHJ
Eastern chipmunk	I
Eastern gray squirrel	I-K
Eastern fox squirrel	H-K
Southern flying squirrel	I
Beaver ^{3/}	BC ^F
Deer mouse	GJ
White-footed mouse	HI
Meadow vole	GJ
Prairie vole	GJ

Mammals

Habitat

Pine vole	G-J
Muskrat	BCD
Norway rat	G-K
House mouse	G-K
Meadow jumping mouse	CG
Eastern cottontail	G-K
White-tailed deer	GHJ

1/ Rare in Illinois

2/ Endangered in Illinois

3/ Rare in watershed area

4/ Uncommon in watershed area

FOOTNOTES

¹Schwegman, John E. (principal author), Natural Division of Illinois, Part 2, Prepared by the Illinois Nature Preserve Commission, (June 1973).

²Smith, Philip W., Illinois Streams, Illinois Natural History Survey, Urbana, Illinois, (November 1971).

³IBID

⁴Smith, Karen, Rare and Endangered Species of Illinois, Bureau of Environmental Science - Illinois Department of Transportation (August 1975).

⁵Office of the Secretary, The Illinois Nature Preserve System, what is is, How it Functions.

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VEGETATION

Vegetation may be defined as the mosaic of phytocenoses in the landscape. A phytocenose is the same as a plant community. It consists of a given combination of competing taxa with relatively uniform ecological requirements.¹ A. W. Kuchler, in his book, Potential Vegetation of the Conterminous United States, says that Will County consists of two basic communities, the prairie and the oak-hickory forest. The prairie consists of dense vegetation of tall grasses and many forbs. Its dominants are: Big Bluestem (*Andropogon gerardi*), Little Bluestem (*Andropogon scoparius*), Switchgrass (*Panicum virgatum*), and Indian Grass (*Sorghastrum nutans*). The oak-hickory forest consists of medium-tall to tall broadleaf deciduous trees. The community is the dominant forest association of Will County. The association follows the floodplain and lowland that drains into the Des Plaines River and its main tributaries. The dominant species for the oak-hickory forest are: Bitternut Hickory (*Carya cordiformis*), Shagbark Hickory (*Carya ovata*), White Oak (*Quercus alba*), Red Oak (*Quercus rubra*), and Black Oak (*Quercus velutina*).

Classification of Vegetation

Vegetation is a term used to designate the total plant cover of a region, area, or site. Vegetation is, generally made up of one or more plant communities or aggregations of plants, usually forming a mosaic or complex. It is a geographic feature of importance, as it determines the appearance and general character of a site. If such a classification is to be serviceable, it must contain five features. It must be possible to apply it, even with the minimum of available information. Secondly, it must be applicable to all macroscopic vegetation, or at least be capable of expansion to accommodate all types that cover mappable areas at ordinary scales. It must convey or be adaptable to

the kinds of information useful to a wide range of users of vegetation. It must be capable of refinement to utilize and convey detailed and quantitative information when it is available. Lastly, it's terminology must in itself convey a substantial amount of information about the vegetation. Classification of vegetation has as primary objectives to facilitate recording of information in an orderly manner, to aid in storage and prompt recovery of such information.

There are several classification factors, among them are climate, topography, ground water, soil, land-use activity (natural versus man-made), and other biotic influences. Many authors of vegetation studies frown on vegetation studies that show supplementary information on other organic resources. This attitude is easily justified in that the studies become detailed in things other than vegetation. This study will attempt to define, briefly, the relationship of these biotic influences with vegetation.²

Climate's influence is rather obvious, but it is a regional factor having little influence on vegetation variation of a site at our scale. Topography is a more important factor since it affects other factors. Both climate and ground water are affected by topography, getting colder and dryer as the elevation is increased. Even the slightest rise will occasion an increased runoff and erosion of the finest soil particles. More pronounced elevations nearly always result in an localized microclimate with it's own contrasts. In depressions, on the other hand, no matter how shallow, soil and water accumulate, promoting growth, but snow and cold air accumulate as well, retarding growth.³ Soil and ground water both have a direct affect on the types of plants to be found on a site and their growth rate.

The last factor is land use and it's impact on the vegetation. This factor relates to planning priorities and goals along with it's implications on existing policies and recommendations. Land use directly effects the potential vegetation and what might

have grown there had the existing land use not been there. also land use affect what may be there due to cultivation or domestication.

Vegetation Analysis Criteria

We will discuss four criteria elements, they consist of physiognomy, structure, composition, and ecosystem classification. In physiognomy, the emphasis rests on the appearance of the vegetation, regardless of it's flouristic composition.⁴ The appearance of the vegetation can be broken down into forest, scrub, grassland, desert, steppe, and others. This represents the roughest and least precise of the classes of information. Gross compositional features, luxurience, seasonality, biotic influences, and relative influences, and relative xeromorphy and the like show up here. Classifications based on physiognomy are about the easiest to agree on and also the easiest to use in cartography. Their categories, however, are usually extremely broad and their significance is often highly debatable. They are also hard to refine in a quantitative manner.⁵

Structure is here defined as the arrangement in space of the components of vegetation. Earlier definations have varied according to different authors, some having restricted it to stratification and spacing, others including data on life-forms, growth-forms, leaf characters, functional adaptations of various sorts, and even dispersal mechanisms. We could stick to the phenomena of height of plants, branching habit, size of stems, size of crowns, thickness and density of canopy, layering or stratification, and depth, density, spacing and stratification of root systems. We then have a logical concept, which we will use due to it's simplicity, dealing only with spacing and size phenomena.⁶

The purpose of all this is to come up with a classification of ecosystems and how they relate to each other, the site, and the user.

Vegetation Survey Analysis

Since there are no concise and detailed reports on vegetation in Will County, a survey form was compiled so that the survey for the study can be gotten first-hand through site visits. This survey form and how to use it will be explained later on in the section entitled "Survey Package." This package will be set up for use in field surveys.

With the results of this survey, we hope to come up with a prediction on vegetation trends as well as the actual vegetation, it's landmarks and significance. When this analysis is put together with existing compositions, extinct or rare plants may come to light. Existing sources show that Meads Milkweed (*Asclepias meadii*), Oval Milkweed (*Asclepias ovalifolia*), Leafy Prairie Clover (*Muhlenbergia cuspidata*), Ruth Aster (*Aster unciformus*), Tennessee Milkvetch (*Astragalus tennesseensis*), and *Actinea herbacea*. Most of these plants are vanishing members of the Illinois prairie. Other rare and unusual plants found in Will County are: Turtlehead (*Chelone glabra*), Nodding Ladies Tresses Orchid (*Spiranthes cernua*), Swamp betony (*Pedicularis lanceolata*), Ohio Goldenrod (*Solidago ohioensis*), five species of orchids, colicroot, seven species of ferns and several sedges. 7

Mapping is done in terms of classificatory units which can be used to characterize and designate areas which are then outlined on a map. Taken together these areas form patterns representing different features and factors, to detect correlations. An important feature of vegetation is the degree of it's stability. A high degree of stability occurs often in natural vegetation. But the natural vegetation can also be unstable, depending on local circumstances. Stability in cultural vegetation occurs primarily in regions that have been occupied by man for many centuries. Unstable vegetation implies that a change is taking place. A change may be brought about by a natural phenomena. Unstable plant communities succeed one another in series in the

altered environment, eventually leading to a type of vegetation that is in harmony with the prevailing environmental features.⁸

Vegetation becomes a mapping component in that it be seen how it is coming and going through the natural vegetation, the original and actual vegetation. The natural vegetation exists in the landscape unaffected by man. The original vegetation exists in the landscape before man affects it significantly. As much of the surface of the earth has been populated for a long time, the original vegetation is often chiefly of historical interest. In the field, the mapper finds himself surrounded by a variety of plant communities. This vegetation is termed the actual vegetation. The actual vegetation is therefore that vegetation which actually exists at the time of the observation, regardless of the character, condition, and stability of it's components communities.⁹

Specific Vegetation Survey

With the information compiled through the field form, specific site surveys can now be done. The field study establishes a relationship to planning priorities and goals, their implications on existing policies and policy recommendations. These survey reports will give an indication of land use suitability, whether specific sites need special consideration like preservation or strict development control. Perhaps the study may bring out the need for game preserves, historic sites, or visual improvement. The composite of all this will allow a ranking of areas and priorities and the classification of unique or important areas or define areas of vulnerability to development pressures.¹⁰

FOOTNOTES

1. Kuchler, A. W., Potential Vegetation of the Conterminous United States, American Geographic Society, 1964, p.1
2. Kuchler, A. W., Vegetation Mapping, Ronald Press Company, New York, 1967, p.39
3. Ibid, p. 40
4. Ibid, p. 19
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6. Ibid, p. 76-7
7. Swink, Floyd, Plants of the Chicago Region, Morton Arboretum, Lisle, IL., 1969
7. Betz, Robert F., "Lockport Proirie," Northeastern Illinois University
8. Kuchler, A. W., Vegetation Mapping, p. 22
9. Ibid, p. 22-3
10. Nelson, J., and Becker, D., "Natural Resources Data Development for, Champaign County Regional Planning Commission," University of Illinois, Urbana, IL.

VEGETATION

Survey Package

By using the Vegetation Field Survey form for vegetation survey, we hope to pioneer a vegetation for specific sites in Will County owned by the Forest Preserve District. Given the Survey Form, individuals or groups of individuals or groups of individuals will take note of significant elements of the vegetation mosaic of each site.

The survey consists of a map drawn by the surveyor of his observations in the field, a matrix containing the vital information necessary to determine the plant association present. A third part consists of a concise report of man-made structures and disturbances, and lastly, a somewhat detailed evaluation of the site.

As the map is drawn and sectioned off according to vegetation groupings, notes should be written to correlate to all other entries on the form. As the matrix is filled out an indication should be made on the map exactly where the condition occurs. The matrix is set up so that the surveyor need do nothing more than check the appropriate box or write a number for the proper composition percentage and size. A place is also provided to mark the presence of the understory and the density of the canopy, understory, or groundcover.

After the matrix is finished (and during if necessary) and correlated to the map, then an indication of man-made structures is made. Last of all the survey is summarized and correlated in a thorough analysis.

Field Survey Checklist

Analyzing the site will vary considerably depending on it's character: Whether it is clear of intensive human use or heavily occupied; whether it is a mature, stable landscape or one that is

changing rapidly; whether it is dominant or recessive, intended for conservative or radical.

****Checklist****

I. Physical Data

A. Geology and soil

1. Underlying geology
2. Soil type
3. Fill, slides, subsidence

B. Water

1. Existing water bodies
2. Natural and man-made drainage channels- flow, capacity, purity
3. Surface drainage pattern, amount, blockages, depressions

C. Topography

1. Pattern of landforms
2. Slope percentage
3. Visibility analysis
4. Unique features

D. Climate

1. Sound levels, smell, atmosphere quality
2. Shade, heat reflection, wind deflection

E. Ecology

1. Dominant plant communities, location and relative stability
2. Dependence on existing factors
3. Specimen trees to be retained
4. Percentage of canopy
5. Height
6. Percentage of understory

F. Man-made structures

1. Existing buildings: type, use, condition
2. Circulation facilities (roads, paths, etc.)
3. Utilities (Storm and sanitary sewers, water, telephone, etc.)

G. Sensuous qualities

1. Viewpoints, vistas, focal points
2. Visual sequences
3. Quality of variation of light, sound, smell, and touch

Source: Site Planning, Lynch, Kevin, M.I.T. Press, Cambridge, Massachusetts, 1971

Definitions

Adjacent ground form- land form in and around designated area.

Closed vegetation- when crowns or peripheries of plants mostly touching.

D.B.H.- Diameter of tree Breast High

Dense shrub- vegetation dominated by thick shrub planting.

Density of area- the thickness of the vegetation composition and related to open and closed vegetation.

Disturbance- physical evidence of man's presence, on or near the site.

Exotic- plants that are not native to the area.

Forest- a physiognomy classification group that is dominated by trees.

Grassland- a physiognomy classification group that is dominated by grasses and forbs.

Definitions continued:

Native vegetation- vegetation that is or was a part of the original or historical landscape.

Percentage of cover- the percentage of the sub-total composition of an area. e.g.- what % are the black oaks from the rest of the trees.

Physiognomy- the general category to classify vegetation by the general appearance. e.g.- forest, scrub, grassland, etc.

Open shrub- vegetation dominated by sparse shrub plantings.

Open vegetation- when crowns or peripheries are not touching.

Scrub- a closed scrub layer

Uniqueness- being of unusual and aesthetic quality.

Visual blight- objects or vistas perceived to be nonaesthetic.

vegetation: field survey (to be completed w/ checklist)

NAME OF SITE _____

COUNTY _____ TWP _____ R _____ SEC. _____

DATE _____ SURV. _____ ACCESS _____

EXISTING LAND USE _____

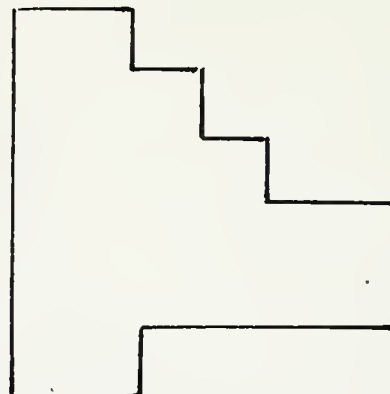
ADJACENT LAND USE _____

DISTURBANCES: MOWING _____ GRAZING _____ FIRE _____

WOODY INVASION _____ EXOTICS _____ CUTTING _____

DUMPING _____ OTHER _____

SOIL TYPE _____ % SLOPE _____



MAP OF SITE

site


INDICATE ON MAP: STRUCTURE, LOCATION, VEG. ASSOCIATION - TO MATRIX SHEET, RIDGE LINES, ADJACENT PROPERTIES, ^{etc.}

site sketch

Vegetation List

• SPECIES • PHYSIOGNOMY • SIZE • SOIL MOISTURE • ADJACENT GROUND FORM • DISTURBANCES • COVER • DBH • HT

MATRIX

• KEY •		AREA # 	
A	FOREST	UPLAND	HORIZONTAL
B	PENK SHRUB	MIDLAND	
C	OPEN SHRUB	LOWLAND	
D	SCRUB	SLIGHT	SLOPES
E	GRASS	MED.	
		SEVERE	
		NORTH	EXPOSURE
		SOUTH	
		EAST	
		WEST	
		WET	SOIL
		MOD.	
		DRY	
		GRAZED	CONDITIONS
		MOWED	
		NATURAL	
		% GRASS COVER	COMPOSITION
		DENSITY-AREA	
		% SHRUB MASS	
		DENSITY-AREA	
		% TREES-CANOPY	
		DENSITY-AREA	

• NOTES •

general: field survey form

natural

LANDFORM/GEOLOGY: _____
WATER RESOURCES: POND _____ LAKE _____ STREAM _____ RIVER _____
OTHER _____ SIZE _____
WATER QUALITY: _____
VEGETATION: WOODLAND _____ WETLAND _____ PRARIE _____ EXOTIC _____
WILDLIFE: _____
RELATIONSHIP TO NEIGHBORING COMMUNITIES: _____

manmade

BUILDINGS: TYPE	DESCRIPTION	CONDITION
_____	_____	_____
_____	_____	_____
_____	_____	_____

CEMETARY: SIZE _____ AGE _____
OTHER MAN-MADE DISTURBANCES/TRAILS (etc): _____
(INCLUDE SITE AGE CONDITION + LOCATION) _____

evaluation

NATIVE VEGETATION: _____

VISUAL BLIGHT: _____

UNIQUENESS: _____

COMMENTS: _____

TREE LIST FOR "WILL COUNTY"

In order to distinguish the vegetation of Will County, a tree-list has been arranged to be used as a guide with the vegetation survey. Hopefully, it will insure a quicker and more accurate identification.

The list is divided into different associations. The trees were found most frequently under these associations in Will County. It also must be understood that the trees to appear in other associations; (example) White oak is found mostly in moist woods, but also appears on wooded slopes, and dry woods.

BOTTOM LAND

BITTERNUT HICKORY	(Carya Cordiformis)
WHITE ASH	(Fraxinus Americana)
RED ASH	(Fraxinus Pennsylvanica)
GREEN ASH	(Fraxinus Pennsylvanica)
KENTUCKY COFFEE TREE	(Gymnocladis Dioicus)
BLACK WALNUT	(Juglans Nigra)
WHITE WALNUT	(Juglans Cin Cinerea)
SYCAMORE	(Platanus Occidentalis)
COTTONWOOD	(Populus Deltoides)
SWAMP WHITE OAK	(Quercus Bicolor)
BUR OAK	(Quercus Macrocarpa)
AMERICAN ELM	(Ulmus Americana)

UPLANDS

HOP HORNBEAM	(Ostrya Virginiana)
PIN OAK	(Quercus Palustris)
SHINGLE OAK	(Quercus Imbricaria)
RED OAK	(Quercus Rubra)
BLACK OAK	(Quercus Velutina)

FIELDS AND DISTURBED AREAS

SMOOTH SUMAC	(Rhus Glabra)
SASSAFRASS	(Sassafras Albidum)
TREE OF HEAVEN	(Ailanthus Altissima)
BLACK ALDER	(Alnus Glutinosa)
GRAY DOGWOOD	(Cornus Racemosa)
DOTTED HAWTHORN	(Crataegus Punctata)
WHITE MULBERRY	(Morus Alba)
PRAIRIE CRAB APPLE	(Malus Coronaria)
RED CEDAR	(Juniperus Virginiana)
RED MULBERRY	(Morus Rubra)
QUAKING ASPEN	(Populus Tremuloides)

WOODLANDS

OSAGE ORANGE	(Maclura Pomifera)
WITCH HAZEL	(Hamamelis Virginiana)
WHITE POPLAR	(Populus Alba)
AMERICAN PLUM	(Prunus Americana)
NARROW LEAVED PLUM	(Prunus Angustifolia)
WILD BLACK CHERRY	(Prunus Serotina)
CHOKE CHERRY	(Prunus Virginiana)
WHITE OAK	(Quercus Alba)
BLACK MAPLE	(Acer Nigrum)
SUGAR MAPLE	(Acer Saccharum)
PAW PAW	(Asimina Triloba)

WOODLANDS-CONTINUED

BLUE BEECH	(<i>Carpinus Caroliniana</i>)
HACKBERRY	(<i>Celtis Occidentalis</i>)
REDBUD	(<i>Cercis Canadensis</i>)
ALTERNATE-LEAVED DOGWOOD	(<i>Cornus Alternifolia</i>)
RED HAWTHORN	(<i>Crataegus Mollis</i>)
BLACK LOCUST	(<i>Robinia Pseudoacacia</i>)
COMMON BUCKTHORN (European)	(<i>Rhamnus Cathartica</i>)
AMERICAN BASSWOOD	(<i>Tilia Americana</i>)
SWEET VIBURNUM	(<i>Viburnum Lentago</i>)
BLACK HAW VIBURNUM	(<i>Viburnum Prunifolium</i>)
BOX ELDER	(<i>Acer negundo</i>)
SHAG BARK HICKORY	(<i>Carya Ovata</i>)

SLOPES

BLUE ASH	(<i>Fraxinus Quadrangulata</i>)
BIG-TOOTH ASPEN	(<i>Populus Grandidentata</i>)
WAFFER ASH	(<i>Ptelea Trifoliata</i>)
WHITE OAK	(<i>Quercus Alba</i>)
SHAD BUSH	(<i>Amelanchier Arborea</i>)
COCK-SPUR THORN	(<i>Cratageus Crus-galli</i>)

WET SOILS ALONG STREAMS

BLACK ASH	(Fraxinus Nigra)
STIFF DOGWOOD	(Cornus Focmina)
RED OSIER DOGWOOD	(Cornus Stolonifera)
SILKY DOGWOOD	(Cornus Obliqua)
WILLOW DOGWOOD	(Cornus Amomum)
SILVER MAPLE	(Acer Saccharinum)
SANDBEAR WILLOW	(Salix Interior)
BLACK WILLOW	(Salix Nigra)
PEACHED-LEAVED WILLOW	(Salix Amygdaboides)

Source: Forest Trees of Illinois, Mohlenbrook, Robert H.,
Department of Conservation



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